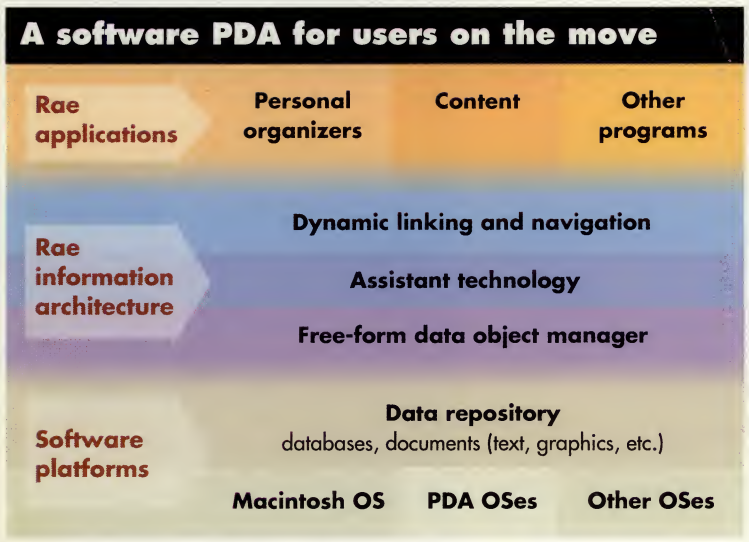
MacWEEK

03.01.93 Volume 7 Number 9 THE NEWSWEEKLY FOR MACINTOSH MANAGERS

IN REVIEWS

- **Sketch! 1.5** Alias packs speed in upgraded 3-D tool
- **PBTools** Util package manages battery life
- **Frontier 2.0** UserLand delivers major upgrade

See Page 41



Free-form data manager from Rae to mimic PDAs

By Andrew Gore

Cupertino, Calif. — PowerBook users frustrated by how difficult it can be to access and organize all the data they deal with while on the road may soon see a ray of hope.

According to sources, Rae Technology Inc., based here, has created a proprietary technology for gathering and organizing the reams of information mobile users need to manage. The company plans to offer both prepackaged and custom applications based on this technology for PowerBooks and eventually personal digital assistants such as Newton.

▸ **Software PDA.** Rae's first commercial application will be a personal organizer that includes a multidimensional date book, con-

See Rae, Page 112

News Analysis

Mac midrange getting crowded

By Neil McManus, Kirsten L. Parkinson and Leonard Heymann

San Francisco — Before taking a gamble on one of Apple's new midrange Macs, users are considering how they will play the slots.

Until recently, buying a midrange Mac was a relatively simple choice between the now-defunct Mac IIsi and IIci. But with last month's introduction of the Centris line and LC III and October's introduction of the IIvx, Mac users now must choose among four midrange models that offer a dizzying array of prices, processor speeds and slot configurations.

Apple's midrange Macs pose questions for corporate users, such as: "Is a 68030 processor sufficient, or do I need the 68040 chips of the Centris line?" "Which machine can I afford?" and "Do I

See Midrange, Page 111

NEWSPAPER SECOND CLASS

Apple to retool warranty policy

Company will offer on-site Mac repairs

By Jon Swartz

Cupertino, Calif. — Succumbing to competitive pressures from other personal computer vendors, Apple plans to offer free one-year, on-site service starting this spring for desktop Macintoshes sold in the United States, sources said.

The new on-site warranty plan, which will be provided by third parties, applies to most Apple products purchased early this year, sources said. PowerBook users, however, still will be required to mail in their machines for repairs.

Sources said Apple is ironing out final details of the plan.

Apple declined to comment.

The company currently offers one-year warranties for all its products and already offers customers one year of free on-site service with its line of Performa consumer Macs.

Apple's extension of warranty coverage will come nearly a year after Compaq Computer Corp. and IBM Corp. began offering users a minimum one-year, on-site warranty free with all their personal computers.

IBM upped the ante last fall by extending on-site coverage for PS/2s and selected notebooks to three years; in December, Compaq followed suit, extending the warranty on all its PCs to three years.

Meanwhile, AST Research Inc. and Dell Computer Corp. also have said they likely will revise their on-site warranty and support services.

Industry observers said Apple, which had mulled over a change in its warranty policy for several months, was finally forced to act to keep pace in the highly competitive desktop market.

"As prices among vendors converge, it is more important than ever to provide thorough service and support," said Pieter Hartsook, editor of The Hartsook Letter in Alameda, Calif. "It adds value to a product, and it builds customer good will."

Users such as Liz Kahler, an

See Warranty, Page 111

ClarisWorks 2.0 may rival stand-alone applications

Upgrade to include paint tools, outlining

By Lisa Picarille

Santa Clara, Calif. — Claris Corp. this month reportedly will ship a major upgrade to its ClarisWorks integrated package.

ClarisWorks 2.0 for the Mac packs enough bang for its 299 bucks to rival not only other Macintosh integrated packages but full-blown applications, including some of Claris' own products, sources said.

New features will include a new 32-bit painting module, which joins the existing word processing, drawing, communications, database and spreadsheet portions of the program, according to beta testers.

In addition, the update adds a built-in outliner, facilities for creating on-screen presentations and features to streamline existing functionality.

▸ **Macro buttons.** One of the first things ClarisWorks users will notice in Version 2.0 are the sets of macro buttons that automate common tasks. The buttons can change from module to module or even document to document, sources said.

For example, the spreadsheet will include buttons for instantly creating frames without row and column

See ClarisWorks, Page 112

Special Report
APPLE ROAD MAP
MacWEEK's guide to Apple's inner workings
See Page 34

Scripting systems for every need en route to Mac

By Robert Hess

San Francisco — Listen closely to the people engineering the future of Macintosh computing and you might think they are all following a script — or one of several new scripting standards designed to bring the power of programming to end users.

Although HyperCard popularized the concept of end-user programming on the Mac, many people felt intimidated by its similarity to real programming. And while macro programs convinced some users that control of their Macs was as easy as pointing and clicking, these programs were limited in their ability to respond to ever-changing Mac environments.

The next generation of scripting products aims to simplify the process by providing a way for users to control applications' actions without worrying about programming structures.

▸ **AppleScript.** When this heir apparent of scripting systems finally

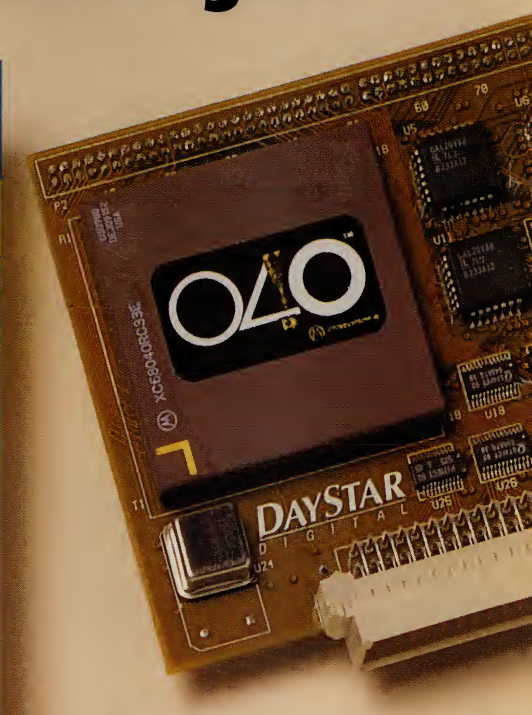
See Scripts, Page 111

Introducing DayStar's Turbo 040™... the only 68040 accelerator that does it right!

OTHER 040's	DAYSTAR'S TURBO 040	
NO	**YES**	Plug In and Startup (No System Install)
NO	**YES**	Saves NuBus Slots For Other Boards
NO	**YES**	Compatible With All Video Cards
NO	**YES**	Supports Non-NuBus Macs
NO	**YES**	Compatible With All QuickDraw Accelerators
NO	**YES**	Optional 128K Cache For More Speed
NO	**YES**	Compatible With Apple Virtual Memory
NO	**YES**	Low Cost, No Penalty Upgrades
NO	**YES**	Compatible With Apple A/ROSE† Cards
NO	**YES**	Does Not Require Additional Memory
NO	**YES**	Compatible with Apple QuickTime
NO	**YES**	Free Storm PicturePress 2.5 Software
NO	**YES**	Compatible With AppleTalk Remote Access
NO	**YES**	Full AppleTalk/EtherTalk Network Support
NO	**YES**	Compatible With Apple MIDI
NO	**YES**	Full-Color Installation/User Manuals
NO	**YES**	Compatible With All Sound Applications
NO	**YES**	3 Year Warranty & Toll-Free Tech Support
NO	**YES**	Compatible With All Scanners
NO	**YES**	Compatible With Apple's "Installer" Application
90	**0***	Total Number of Compatibility Problems

* As on the Macintosh® Quadra, using the Apple 8•24 GC Card requires the user to turn off 68040 data caching. 100% compatible with System 6 and System 7 (A/UX not supported).

† A/ROSE- Apple Real Time Operating System Environment includes Apple Coax/Twinax Card,Ethernet NB Card, MacAPPC, MACDFT, MCP Card, Serial NB Card, SNA.PS, TokenTalk NB Card.



DayStar's PowerCache '030 accelerators have won nearly every editorial award in the USA, Europe and Japan. They set the standard for what an accelerator should be – fast as lightning and as compatible as if Apple did it themselves.

On top of this, DayStar puts its customers first with aggressive prices, color manuals, unlimited toll-free tech support, and upgrades to the fastest speeds, at any time and without paying a penalty.

Now, after extensive development by the DayStar engineers, we are proud to offer you the Turbo 040 – a 68040 accelerator that's every bit as good as our 68030 PowerCache, only it goes like greased lightning!

The Turbo 040 has a built in math chip and is available in two speeds – 25 MHz (Quadra 700 speeds) and 33 MHz (Quadra 950 speeds). Like the Quadra, the Turbo 040 also has an optional 128K cache card to squeeze out every bit of performance.

Feel free to choose the speed you need today without worrying about missing out on tomorrow's faster boards. When you want to upgrade, just check out the list price of the board you have and the board you need. Take the difference, and that's your upgrade price!

With DayStar, you can be an expert at working on your Mac, not making your Mac work. The Turbo 040 is a breeze to install and operate – just plug it in and turn it on! No installation or "system patches" that create incompatibilities. The Turbo 040, like the PowerCache, plugs directly into the Mac through the processor direct slot. Therefore, it's faster, you don't waste any NuBus slots, and you don't have to move or buy any memory.

Come join the DayStar way. There are no penalties with DayStar – just speed that's smooth as silk and problem free.

WHEN YOU FEEL THE NEED for SPEED

3 Year WARRANTY · SWAP UP UPGRADE PROGRAM · MONEY BACK 30 DAY GUARANTEE · 100% Compatible

DAYSTAR DIGITAL

Call for an immediate fax brochure! #4001
1-800-438-0370

5556 Atlanta Highway, Flowery Branch, GA 30542 · Int'l: (404) 967-2077, Fax: (404) 967-3018 · All DayStar accelerators are SNOOPER™ tested.

Other brands and product names are trademarks or registered trademarks of their respective holders. Product specifications are subject to change without notice. ©1993 DayStar Digital, Inc

Apple dispatches bug fix, 32-bit enabler for 7.1 users

System Update 1.0 affects few Macs

By Robert Hess

Cupertino, Calif. — Apple last week released two new extensions for System 7.1. As previously reported, Macintosh Hardware System Update 1.0 fixes some bugs in 7.1, while the 32-Bit System Enabler supports 32-bit addressing on older Macs.

▸ **Macintosh Hardware System Update 1.0.** Steve Goldberg, Apple manager of Macintosh system software, said only a small number of users need the update and those who do should find the problems "very noticeable." Errors include decreased performance of high-speed serial communications and inaccurate system clocks, which potentially affect the Mac LC, LC II, IIsi, IIvx, IIvi, Classic II, and Quadra 900 and 950. The update also corrects problems with floppy disk ejection on the Mac IIsi, IIci, IIvx, IIvi, and Quadra 700 and 950.

The update also includes a new version of the Memory control panel that prevents users from setting RAM disk sizes to inappropriate values (see MacWEEK, Feb. 8).

▸ **32-Bit System Enabler.** This extension permits Macs without 32-bit-clean ROMs to use more than 8 Mbytes of memory.

With the Enabler, owners of Mac IIx, IIcx and SE/30 models with System 7.1 installed can access up to 128 Mbytes of physical RAM, and Mac II users can access up to 68 Mbytes. The Enabler also lets these users turn this feature on; Mac II users must have a PMMU (paged memory management unit) to access virtual memory.

Both extensions will be free from user groups and on-line services.

Users can call Apple at (800) 892-4649 to order disk copies of either extension for a $10 shipping fee. □

Virus vendors respond to new strains

By Mitch Ratcliffe

Evanston, Ill. — Two new Mac viruses have resulted in a flood of upgrades to anti-viral utilities.

Virus-watcher John Norstad of Northwestern University here reported last week that new variants of T4 and CDEF have been discovered at the University of Illinois at Urbana and in New York, respectively.

T4-C, which attempts to change the name of applications to "Disinfectant," can damage system boot code, applications and parts of the System file, according to Gene Spafford of Purdue University in West Lafayette, Ind. He said the new version of CDEF, a virus that can damage the desktop files of Macs running System 6, can be detected by most anti-viral software.

But one widely used software innoculant, the shareware application Disinfectant 2.9, cannot detect the new CDEF variant.

Norstad, chief author of Disinfectant, said he has released a new version of the application, Version 3.0, that deals with T4-C and the new CDEF. It is available now on most on-line services, Internet Mac archives and many bulletin boards. Norstad said the upgrade also fixes an incompatibility with Aladdin Systems Inc.'s StuffIt SpaceSaver.

Free upgrades will be available for several commercial virus utilities.

Symantec Corp. said Version 3.5 of its $99 Symantec AntiVirus for Macintosh can detect both new viruses. Users of Version 3.0 can download Virus Clinic and Intercept upgrade modules from major on-line systems.

Central Point Software Inc. will post on-line a drop-in module for its Anti-Virus. Microcom Inc. will ship free upgrades to users of Virex.

Microseeds Publishing Inc.'s Rival and the shareware applications VirusDetective and Gatekeeper do not require upgrades to detect the new viruses. □

Apple denies reports of RISC Mac clones

Cupertino, Calif. — Apple last week categorically denied published reports that it has licensed or plans to license third parties to build PowerPC-based Macintosh clones.

"Apple has no plans to license the Mac OS for PowerPC clones," said Apple spokeswoman Betty Taylor.

PowerPC, a RISC processor being developed by Apple, IBM Corp. and Motorola Inc., will be available for purchase by computer makers but won't include the RISC implementation of the Mac operating system.

However, sources said that Apple and IBM do plan to offer PowerOpen, their Unix OS, to a limited number of third parties to run on PowerPC machines. □

News

4 **Seven-inch cards in short supply**
Vendors will fill the Centris 610's smaller NuBus space slowly.

6 **Nine to Five outputs PaperLess Printer**
Program creates electronic documents that users can read, annotate, print without originating application.

14 **PowerBooks and PCs**
PowerBooks are quietly finding their way into the PC world, but linking them with DOS isn't as difficult as many believe.

Gateways

20 **Asanté climbs Ethernet ladder**
Vendor to unveil departmental hub, bridging module.

20 **Vendors throw switches at users**
Tribe, Synernetics, UB offer switch options.

GA

24 **Canto brings European graphics apps to U.S.**
Programs catalog images, let users adjust scanning controls.

24 **Digital F/X premieres Hitchcock video system**
Nonlinear video-editing system exports EDLs.

BusinessWatch

28 **SuperMac buys E-Machines product line**
Acquisition boosts company's share of Mac 24-bit display market.

28 **Clinton unveils $17 billion technology plan**
High-tech companies eager to take spin on information "superhighway."

Special Report

34 **Apple road map**
The computer maker has changed a lot in the past two years; MacWEEK presents a guide to the different missions of Apple's five major divisions.

Opinion

32 **Editorial**
Apple thrives on chaos, strategies *du jour*.

32 **Commentary/Jean-Louis Gassée**
Time for General Magic to conjure real products.

33 **Letters**
Let's hear it for Omnis 7.

33 **Mac Manager/Don Crabb**
Distributed computing can fix wasted cycles.

Reviews

41 **Alias redraws Sketch!**
Upgrade addresses many problems: improves screen redrawing, text importing, texture mapping.

41 **PBTools big on conservation**
Utility concentrates on battery-charge maintenance for PowerBooks.

44 **PowerPrint/LT takes non-Mac printers to LocalTalk**
Hardware, software package can put up to 800 parallel-interface printers on the network.

45 **UserLand opens new tools in Frontier 2.0**
Upgrade more accessible to programming novices and more powerful for experts.

ProductWatch

47 **The road to geographic imagery**
Mapping software for business and scientific research puts spin on raw data.

50 **MacInTouch/Ric Ford**
Spending more time with the HFS bug.

50 **Ask David Ramsey**
New 72-pin SIMMs make life better.

Mac the Knife

114 **This monitor is the message**
And now a display with built-in sound-in and -out.

55 **Ad Showcase** 110 **Careers**
58 **Mail Order** 112 **Advertiser Index**
93 **Classified** 113 **Product Index**

MacWEEK (ISSN 0892-8118) is published weekly, with the exception of Aug. 30, Nov. 22, and Dec. 20 and 27 by Coastal Associates Publishing, L.P., 1 Park Ave., New York, N.Y. 10016. Single copy price including postage: $6. One-year subscription rate: U.S. $99, Canada/Mexico U.S. $175, International: U.S. $300 (airmail). All orders must be prepaid. Direct subscription inquiries to Customer Service Department, MacWEEK, c/o JCI, P.O. Box 1766, Riverton, N.J. 08077-7366; (609) 461-2100. Changes of address require that a new application be filled out completely and include both new and old address. Allow 4-6 weeks for processing. Postmaster: Send address changes to MacWEEK, P.O. Box 1766, Riverton, N.J. 08077-7366. Second-class postage paid at New York and additional mailing offices. MacWEEK is an independent journal, not affiliated with Apple Computer Inc. Apple and Macintosh are trademarks of Apple Computer Inc. Entire contents copyright 1993 Coastal Associates Publishing, L.P. All rights reserved. Material in this publication may not be reproduced in any form without permission. Requests for permission should be directed to Chantal Lavelanet, 1 Park Ave., New York, N.Y. 10016. For information on reprints in quantities of 500 or more, write Claudia Crichlow, Ziff-Davis Publishing Co., 1 Park Ave., New York, N.Y. 10016. MacWEEK is a registered trademark of Coastal Associates Publishing, L.P. Printed in U.S.A.

Newer releases RAM for PB 165c

Util finds slow RAM in new PowerBooks

By Carolyn Said

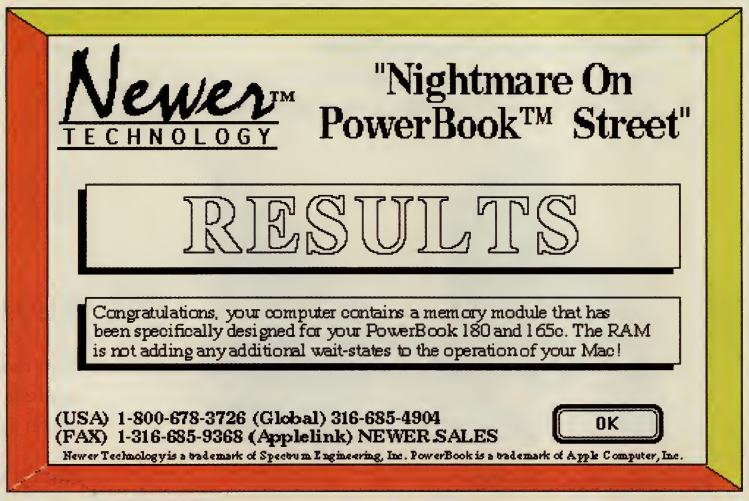
Wichita, Kan. — Newer Technology is whipping up some solutions to add and test memory on the newest PowerBooks.

The company last week announced a freeware application to check if the correct memory module has been installed in a PowerBook 180 or 165c. It also unveiled modules engineered specifically for the PowerBook 165c.

▶ **Utility.** Newer this week will release Nightmare On PowerBook Street, a free application that checks if the correct memory module has been installed in a PowerBook 180 or 165c.

The 180 and 165c require 85-nanosecond pseudo-static RAM for full-speed operation; older PowerBooks use 100-nanosecond memory.

While the 180 and 165c can accommodate modules designed for the older machines, adding the slower RAM slows the machines, Newer said. When the new PowerBooks detect the older memory, they switch into a compatible mode, which adds extra wait states and thus slows performance. Further, Newer said, older modules may require the removal of heat sinks, which voids the warranty and can cause motherboard components to overheat.



Nightmare On PowerBook Street checks a PowerBook 180 or 165c for the presence of additional wait states to determine if the correct memory modules have been installed.

Nightmare On PowerBook Street detects when additional wait states are being used, alerting users to the presence of an older memory module.

▶ **PowerBook 165c RAM.** Newer next week will ship 2-Mbyte, 4-Mbyte, 6-Mbyte, 8-Mbyte and 10-Mbyte memory modules for the new color PowerBook, which comes standard with 4 Mbytes of RAM.

Although the memory-expansion connector and RAM specification used on the PowerBook 165c are identical to those of the PowerBook 180, the color PowerBook holds its RAM on a separate card, forcing vendors of high-capacity RAM cards to redesign their offerings to fit the machine's cramped space.

The company declined to release pricing because it varies with fluctuations in market demand.

Newer Technology is at 7803 E. Osie, Suite 105, Wichita, Kan. 67207. Phone (316) 685-4904 or (800) 678-3726; fax (316) 685-9368. □

Centris users face limited choice: Only some NuBus cards fit 610

By Raines Cohen

San Francisco — The Centris 610 may pose a dilemma for expansion-hungry users: The new Mac offers only a processor direct slot; with an adapter, it accepts NuBus cards no longer than 7 inches. Until now, 13 inches has been the standard NuBus size.

Some cards already are small enough to fit the 610; others are being redesigned to fit (see chart, below). However, many cards, especially accelerators and high-resolution display adapters, include so many chips that it would take a major redesign for them to fit the system.

Vendors said they will move cards to the newer standard slowly.

"In the future, when we reissue our display cards, we may re-engineer them to fit the 7-inch form factor," said a spokesman for Radius Inc. of San Jose, Calif. "At this point, I doubt that we'll go retro and redo our entire line at once."

Technical obstacles may prevent some cards from ever shrinking to fit. "For most of the monitor cards, it's no big deal [to redesign them for the smaller size]," said Randy Cook, product manager for multimedia at RasterOps Corp. of Santa Clara, Calif. "But for multimedia cards, [electrical] noise in the analog components is hard to avoid when you miniaturize the boards."

Some users may end up choosing other Macs to avoid the problem. "We think that heavy-duty multimedia users will go with the Centris 650," which has three full-size NuBus slots, Cook said. Others may turn to expansion options such as Second Wave Inc.'s external NuBus chassis systems (see story, below).

The issue may become more pressing when Apple ships other Macs using the same 7-inch form factor later this year, sources said. □

Some NuBus cards that fit the Centris 610

CATEGORY	VENDOR	PRODUCT
Networking	Farallon	EtherMac II-10T, -TN, -C
	Asanté	MacCON3 for NuBus
	Asanté	MacCon+IIE
	Asanté	MacCon+IIET
Data acquisition	National Instruments	NB-DIO-96 and -24
	National Instruments	NB-GPIB and -GPIB-p*
Expansion	Second Wave	Expanse NB4 and NB8
Display	RasterOps	24STV
	Radius	PrecisionColor 24X/1152 and 24XK/1024
Accelerator	DayStar	Charger series**
	Newer	Image Magic DSP card
	Spectral Innovations	Lightning Effects DSP card
	Spectral Innovations	MacDSP256KNI
	Spectral Innovations	NuMedia

** Special internal I/O connector is unusable; a new adapter will be offered for external connector.*
*** Card is being redesigned to fit; a new version will ship by April.*

Mass Micro bundles QuickImage card, DataPak

By Kirsten L. Parkinson

Sunnyvale, Calif. — Mass Microsystems Inc. last week announced a multimedia bundle that packages its QuickImage 24 Video Capture Card with its SyQuest-based DataPak drives. In addition, the company is offering a host of drives for the new Macs.

▶ **Multimedia bundle.** A $1,059 bundle includes the QuickImage card and the 44-Mbyte DataPak model; a package that bundles the card with the 88-Mbyte DataPak 88C costs $1,189.

QuickImage, regularly $395, lets users capture images from video-tape recorders, camcorders and videodisc players. The board offers JPEG (Joint Photographic Experts Group) compression hardware.

The 44-Mbyte DataPak usually lists for $769; the DataPak 88C, which can read and write both 44-Mbyte and 88-Mbyte cartridges, regularly retails for $959.

The bundle offer, which is available through April 30, is designed to dovetail with a plan by SyQuest Technology Inc. and DiVA Corp. to include DiVA's VideoShop 1.0 on SyQuest's removable cartridges (see story, below).

▶ **Multimedia upgrade kit.** Mass Micro is offering multimedia upgrade kits to users who already own DataPak drives. For $259, users can get the QuickImage 24 card and a 44-Mbyte SyQuest cartridge that includes VideoShop. A $299 package includes the card and an 88-Mbyte cartridge.

▶ **Drives for new Macs.** Mass Micro unveiled a number of internal drives that are fitted with brackets for the Quadra 800, Centris 610 and 650, and the Duo Dock.

New DiamondDrives, in capacities from 120 Mbytes to 1 Gbyte, range in price from $539 to $3,195. The SCSI-2 MASSterDrives, available in capacities from 510 Mbytes to 2.8 Gbytes, are priced from $1,849 to $7,695.

Mass Micro is shipping internal CD-ROM drives and magneto-optical drives for the Centris line for $839 and $1,699, respectively. A digital audio tape drive for the Quadra and Centris models is $2,649, and internal SyQuest drives for the Centris line cost from $599 to $899.

Mass Microsystems Inc. is at 810 W. Maude Ave., Sunnyvale, Calif. 94086. Phone (408) 522-1200; fax (408) 733-5499. □

SyQuest offers VideoShop on cartridges

Fremont, Calif. — SyQuest Technology Inc., based here, and DiVA Corp. of Cambridge, Mass., last week unveiled a limited-time offer that will include DiVA's VideoShop 1.0 on SyQuest removable-media cartridges.

VideoShop, a $599 QuickTime editing program, will be bundled on both the 44-Mbyte and 88-Mbyte SyQuest cartridges through April 30.

The cartridges also will include QuickTime 1.0, a HyperCard version of the VideoShop manual, a collection of sound and video clips from The Image Bank Inc. of New York, and SyQuest's SCSI Probe utility.

Users will be able to upgrade to VideoShop 2.0 for $249 when it is released this spring (see MacWEEK, Jan. 25). □

Second Wave expands NuBus options

Austin, Texas — Second Wave Inc. last week reduced prices and added new versions to its Expanse line of external NuBus chassis systems.

▶ **Price cuts.** The four-slot Expanse NB4 and the eight-slot Expanse NB8 were cut by $300 each, to $995 and $1,895, respectively.

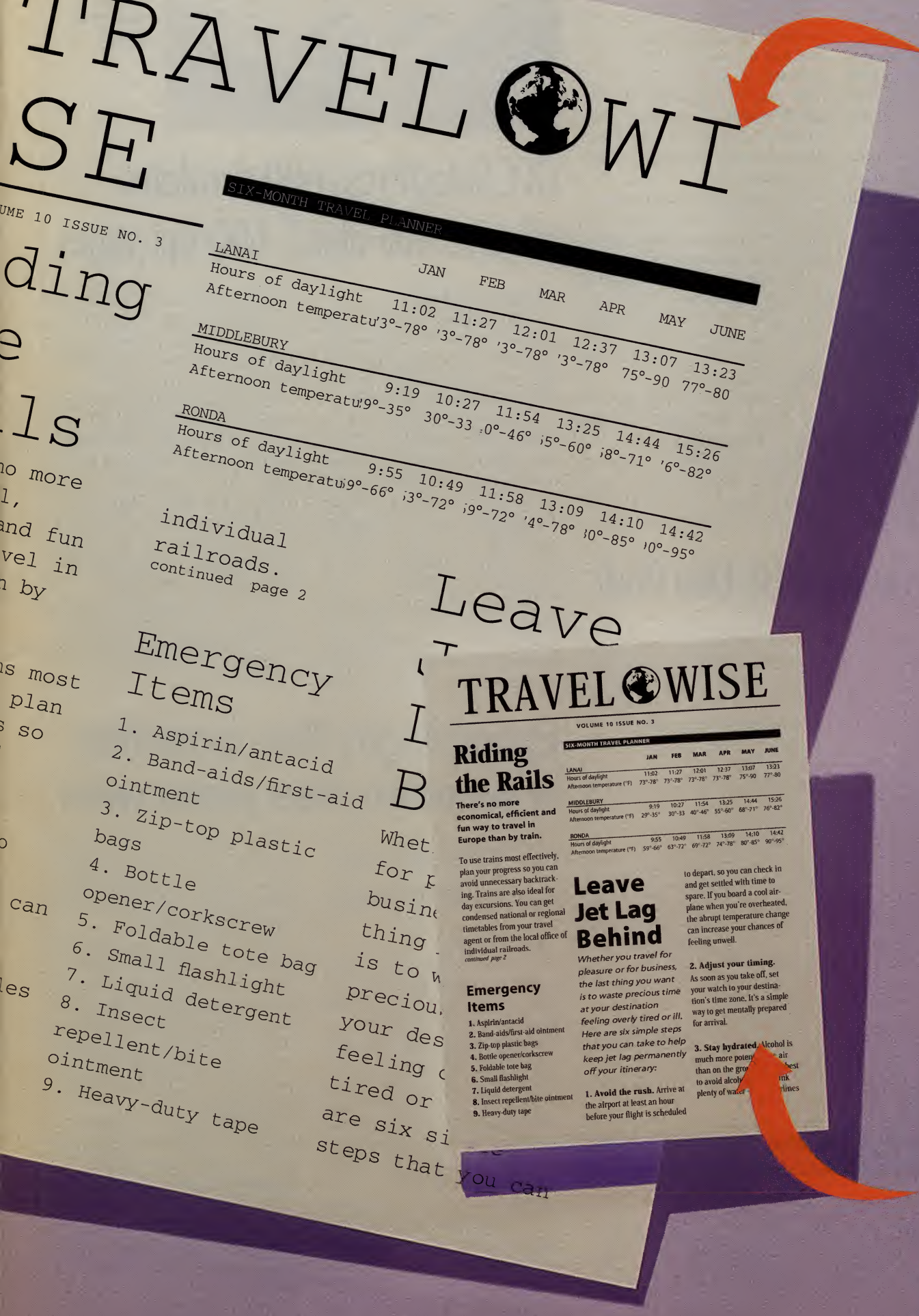
▶ **Two-slot chassis.** This spring the company will ship Expanse NB2, a two-slot chassis. The device will sell for less than $500 and fit between the Mac and the monitor.

▶ **New interface.** Also this spring, LC III users will be able to buy Expanse systems with an interface card that fits their Mac's processor direct slot. Pricing will be the same as for other Expanse chassis.

Existing Expanse systems offer the choice of a 7-inch NuBus interface or an SE/30 PDS interface.

Second Wave Inc. is at 9430 Research Blvd., Echelon II, Suite 260, Austin, Texas 78769. Phone (512) 343-9661; fax (512) 343-9663. □

Introducing SuperATM. Now You Can Move It Without Losing It.



This ever happen to you?
Someone sends you a document and when you pull it up on your computer or print it, it looks like alphabet soup: letters floating off, no formatting, and type that's…that's… what is that Geneva? Courier?

What happened?
You're missing SuperATM™ software from Adobe.

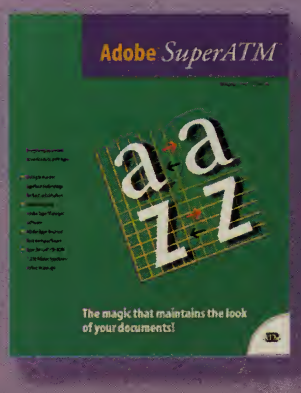
You see, until now, if you didn't have the same fonts as the author of the document, you didn't have a document. You had a problem.

But SuperATM is going to change all that.
With SuperATM, people can send you documents that you can view, print, even edit, in all their original glory.

Magic?
No, but close. SuperATM creates "substitute fonts" that accurately maintain the look of your formatted text.

But that's not the only reason it's called super. It's also a super value. SuperATM includes Adobe™ Type Reunion™ font menu software, a new version of Adobe Type Manager™ software, five free typefaces, and Type On Call,™ a CD-ROM with more than 1,350 typefaces that you can buy as you need them.

To get your copy or upgrade,* just call us: 1-800-83-FONTS (1-800-833-6687), Dept. B, ext. 3335 and order. Or see your local Adobe reseller. And don't ever worry about moving documents–and losing them–again.



**If you already have Adobe Type Manager, you can upgrade to SuperATM for just $49. That's $100 off the suggested retail price.*

ADOBE

Adobe, the Adobe logo, Adobe Type Manager, SuperATM, Type Reunion and Type On Call are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions.
Copyright © 1993 Adobe Systems Incorporated. All rights reserved.

Utility eases document exchange

PaperLess Printer outputs docs to disk

By Ian G. Jacobs

Boulder, Colo. — Nine To Five Software Inc. has begun shipping a program that turns any Mac document into electronic "paper" that can be viewed without the originating application.

The PaperLess Printer includes:

- **Printer Driver,** a Chooser-level driver that records documents to disk instead of printing them.
- **Printer Switcher,** a control panel that allows the user to switch between the current printer and the program's Printer Driver.
- **PaperLess Viewer,** an application that permits users to view, search, reduce, enlarge and mark pages, as well as attach notes to a document.

The program can perform proximity searches on text in a document, finding words that occur in the same line or on the same page.

PaperLess Printer documents can be protected by encryption and passwords.

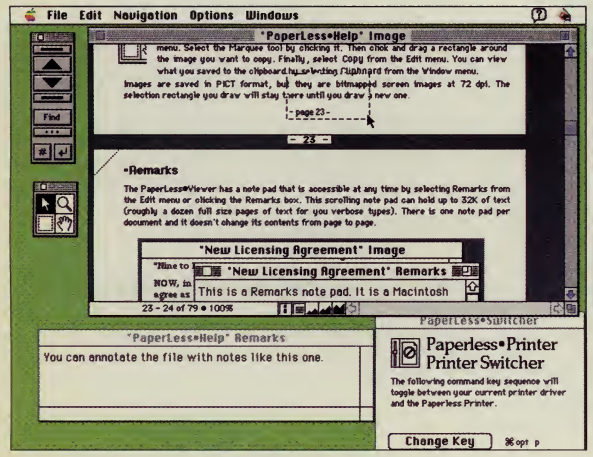
If a document's fonts are not installed, the Viewer relies on system font substitution. Different approaches are taken by Adobe Systems Inc.'s forthcoming Acrobat, which mimics font metrics, and No Hands Software's Common Ground, which substitutes bit maps for missing fonts.

By August, Nine to Five hopes to introduce OS/2 and Windows versions of the program, allowing cross-platform distribution of documents.

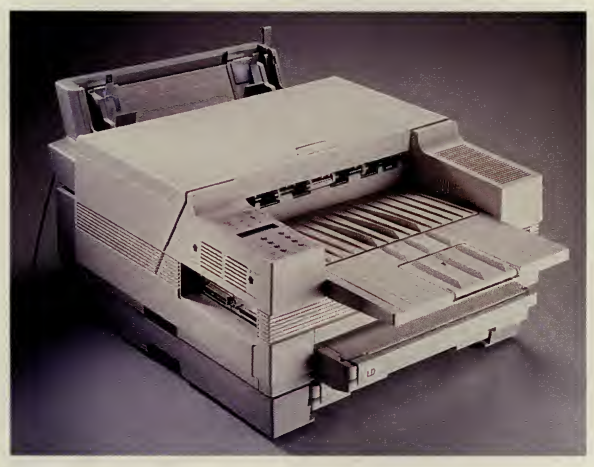
No Hands, whose Common Ground shipped for the Mac this year, plans a Windows version for release by summer, while Adobe plans Mac, DOS, Windows and Unix versions of Acrobat.

The PaperLess Printer will sell for $19.95 until April 22, after which it will cost $119.95.

Nine to Five Software Inc. is at P.O. Box 18899, Boulder, Colo. 80308. Phone (303) 443-4104 or (800) 292-5925; fax (303) 443-4386. □



Nine To Five's PaperLess Printer prints to disk to create electronic "paper." The Printer Switcher, bottom right, lets users change between their printer and the program's Printer Driver without going to the Chooser.



GCC Technologies' Level 2-compatible SelectPress 600 can output full-bleed, tabloid-size pages at a hardware resolution of 600 dpi.

GCC SelectPress 600 circulates tab-size, full-bleed, 600-dpi pages

By Matthew Rothenberg

Bedford, Mass. — GCC Technologies Inc. last month delivered a laser printer that can output full-bleed pages up to tabloid size at a hardware resolution of 600 dpi.

The SelectPress 600, priced at $4,499, prints eight letter-size or four tabloid-size pages per minute. It switches automatically between the Level 2 version of Phoenix Technologies Ltd.'s PhoenixPage PostScript interpreter and PCL 5 and HP-GL emulations, and it includes 39 Type 1 fonts.

The printer comes standard with simultaneously active LocalTalk, RS-232 serial and Centronics parallel interfaces, as well as a SCSI port connected to a 40-Mbyte hard disk. Through May 15, GCC will bundle the SelectPress 600 with an Ethernet card that supports thin-net and 10BASE T; Ethernet will cost $429 thereafter, the company said.

The SelectPress 600 is based on a Toshiba TN-7270 engine and runs on a 25-MHz AMD 29030 RISC processor with 8 Mbytes of RAM, which can be expanded to 40 Mbytes. The printer ships with a 250-sheet paper tray. GCC offers a second 250-sheet tray and a 150-sheet multipurpose sheet feeder for $499 and $299, respectively.

GCC Technologies Inc. is at 209 Burlington Road, Bedford, Mass. 01730-9143. Phone (617) 275-5800 or (800) 422-7777; fax (617) 275-1115. □

Microtech lines up storage for Centris 610, Duo Dock

By Kirsten L. Parkinson

East Haven, Conn. — Microtech International Inc. last month rolled out a host of new storage options, including four internal drives for the Centris 610.

- **Centris 610 drives.** The company's Europa line for the Centris 610 includes four drives in capacities ranging from 101 Mbytes to 499 Mbytes (see chart below).

The drives are based on low-power, 1-inch-high, 3.5-inch mechanisms. Microtech declined to name the mechanisms' manufacturers.

The Europa models offer average seek times as fast as 10 milliseconds and sustained data transfer rates up to 2.5 Mbytes per second. The Europa 100i and 200i are standard SCSI drives; the 400i and 500i offer SCSI-2 interfaces.

- **Duo Dock internal drive.** Microtech is now shipping the $1,499 Roadrunner D500i, a 499-Mbyte internal drive for the Duo Dock.

The new 3.5-inch, low-power model, which provides an average seek time of 10 milliseconds and a sustained data transfer rate of 2.5 Mbytes per second, replaces the 435-Mbyte Roadrunner D400i model, which listed for the same price.

- **32-bit SIMMs.** The company is offering 1-Mbyte, 2-Mbyte, 4-Mbyte, 8-Mbyte and 16-Mbyte SIMMs in 32-bit, 72-pin configurations compatible with the LC III, Centris 610 and 650, and Quadra 800 models.

Prices for the memory modules are unavailable because of price fluctuation, Microtech said.

- **Price cuts.** The company also slashed the prices of most of its drive lines from 25 percent to 46 percent.

The biggest cuts came in the high-capacity Nova and Nova XL lines, according to Microtech. For example, the 1-Gbyte Nova XL1000 dropped to $3,049, a $2,250 reduction.

Microtech International Inc. is at 158 Commerce St., East Haven, Conn. 06512. Phone (203) 468-6223 or (800) 626-4276; fax (203) 468-6466. □

New Europa internal drives for Centris 610

MODEL	CAPACITY	AVERAGE SEEK TIME	SUSTAINED DATA TRANSFER RATE	PRICE
100i	101 Mbytes	17 milliseconds	1.1 Mbytes per second	$504
200i	202 Mbytes	15 milliseconds	1.3 Mbytes per second	$766
400i	435 Mbytes	11 milliseconds	1.8 Mbytes per second	$1,329
500i	499 Mbytes	10 milliseconds	2.5 Mbytes per second	$1,469

For the record

Last week's story on Microsoft Office inaccurately reported that there is no upgrade available for the entire collection on CD-ROM. Microsoft Corp. reissues the Office CD whenever one of the four applications it contains is updated. Users can upgrade the entire CD or can upgrade individual applications on disk. Pricing varies depending on version.

In the Feb. 15 issue, Quasar Knowledge Systems Inc.'s fax number was incorrect. The number is (301) 530-5712.

The Feb. 15 story about MADA's CD-ROM contained incorrect information, provided by MADA. Thomas is not public domain. It is copyrighted and is being freely distributed. It was developed by Digital Equipment Corp.

Epson kits give Macs connections to dot-matrix, laser printer series

Add PostScript card to new ActionLasers

By Carolyn Said

Torrance, Calif. — Epson America Inc. this month lined up its dot-matrix and laser printers for Mac connectivity with two new kits.

- **Dot matrix.** The Epson Talk kit for dot matrix, due by midmonth for $229, lets Mac users print to Epson's LQ 700 series of dot-matrix printers, as well as to some of its ActionPrinter dot-matrix printers. The printers range in price from $449 to $1,499.

Dot-matrix printers are used for printing specialized documents such as wide-format spreadsheets, multipart forms, labels, invoices and checks.

The kit consists of a user-installable LocalTalk interface board, cabling and a driver.

- **Laser printers.** The Epson Talk kit for lasers, due this month for $699, lets Mac users print PostScript graphics to Epson's EPL-8000 and new ActionLaser 1000 and 1500 laser printers.

All three printers are based on Minolta 300-dpi engines. The EPL-8000, priced at $1,599, has an engine speed of 10 pages per minute and a PCL 5 interpreter. The ActionLaser 1000, priced at $799, has PCL 4; the ActionLaser 1500, priced at $999, also has PCL 5. Both ActionLasers print at 6 ppm.

The 8000 and 1500 have Epson's Ritech resolution-enhancement technology in firmware, which raises effective resolution to 600 dpi.

The Epson Talk kit for laser printers includes a user-installable LocalTalk interface, Adobe PostScript interface card, cabling and a driver.

Epson America Inc. is at 20770 Madrona Ave., Torrance, Calif. 90309. Phone (310) 782-0770, (800) 289-3776; fax (310) 782-4235. □

MAKE YOUR OWN

CD's

RECORDABLE CD MAKER

Media: RCD-63
Capacity: 580 MB
Time: 63 minutes
Price: $39.00 each

FOR ONLY $3,995.

Pinnacle Micro introduces the first affordable, recordable CD-ROM drive for MAC and PC computers. The RCD-202 system comes complete with an easy-to-use software program that allows you to produce HFS, ISO 9660 or audio CD's within minutes. Now you have the ability to create your own CD's for low cost data distribution, backup or even master your own disk for mass duplication. For more information on how you can master this new recordable CD-ROM technology call:

800 • 553 • 7070

Trademark Owners: RCD and Pinnacle Micro are trademarks of Pinnacle Micro, Inc. © 1993

PINNACLE MICRO

THE OPTICAL STORAGE COMPANY®

19 Technology • Irvine, CA 92718 • Int'l (714) 727-3300 • Fax (714) 727-1913

Optima ships array of storage for new Macs

Centris 610 gets DATs, removables

By Nathalie Welch

Irvine, Calif. — Optima Technology Corp. this month released a bevy of storage products for Apple's newest CPUs.

▸ **DAT subsystems.** The $2,195 C2000DAT, with a storage capacity of 2 Gbytes, and the $2,695 C8000DAT, which stores up to 8 Gbytes through data compression, are internal DAT subsystems designed for the removable-media drive bay of the Centris 610. They come with DeskTape, Optima's system extension that puts a tape icon on the desktop and lets users copy files, folders or volumes to the tape by dragging them onto the icon.

▸ **Removable hard disks.** Optima's new line of internal SyQuest removable drives also is intended for the Centris 610. The $530 C45R uses 44-Mbyte cartridges, the $798 C88R uses 88-Mbyte cartridges, and the $898 C88Rplus reads from and writes to both sizes. They are bundled with DiskINIT, Optima's system extension that lets users eject and format cartridges as if they were floppy disks.

▸ **Magneto-optical.** The $1,699 C128MO is an internal, 128-Mbyte, removable magneto-optical drive for the Centris 610. It is bundled with MOinit, Optima's system extension that lets users eject and format magneto-optical cartridges.

▸ **Internal hard disks.** The company announced five 5.25-inch internal hard disk subsystems that fit inside the IIvx, Centris 610 and 650, and Quadra 800 and 950. The new hard disks range from the $895 C240, with a 240-Mbyte capacity, to the $4,795 C1600, which holds 1.6 Gbytes.

Optima's new $895 C240/3 240-Mbyte drive and $1,795 C500/3 500-Mbyte drive are third-height drives designed to replace the existing 3.5-inch drive in the Centris 610.

The subsystems feature average seek times as fast as 10 milliseconds, data transfer rates of up to 10 Mbps and rotational speeds of up to 5,400 rpm.

The drives are bundled with DiskMount, Optima's partitioning, mirroring, password-protection and diagnostic software.

Optima also sells a variety of 3.5-inch hard disk mechanisms, which can be used to replace the Apple-supplied drive in any desktop Mac. The company is now offering models with brackets and cabling for the new Color Classic and LC III.

Optima Technology Corp. is at 17526 Von Karman, Irvine, Calif. 92714. Phone (714) 476-0515; fax (714) 476-0613. □

NewGen models sharpen halftones on Personal Series RISC-based line

By Matthew Rothenberg

Fountain Valley, Calif. — NewGen Systems Corp. last month pushed up the resolution of its Personal Series line of RISC-based laser printers with two new models.

The $2,395 TurboPS/880p and $2,195 TurboPS/660p use proprietary image-enhancement and halftoning software to print at resolutions of 800 by 800 dpi and 600 by 600 dpi, respectively.

Like the other members of the Personal Series, the $1,595 TurboPS/300p and the $1,995 TurboPS/400p, the new models are based on Canon U.S.A. Inc.'s 300-dpi, 4-page-per-minute LBP-LX engine and handle letter-size paper.

Both printers switch automatically among NewGen's PostScript interpreter, which is based on Weitek Corp. technology, and PCL 4 and HP-GL emulations.

Each also comes with automatic connection switching among LocalTalk, RS-232C serial and Centronics parallel ports.

Both devices feature 25-MHz Weitek XL-8220 RISC chips. The TurboPS/880p and the TurboPS/660p ship with 12 Mbytes and 8 Mbytes of RAM, respectively, and each can be upgraded to 32 Mbytes. Each includes a 200-sheet paper tray.

NewGen Systems Corp. is at 17580 Newhope St., Fountain Valley, Calif. 92708. Phone (714) 641-8600 or (800) 756-0556; fax (714) 641-2800. □

Lifetime outfits new Macs with 32-bit SIMMs

Huntington Beach, Calif. — Lifetime Memory Products Inc. last month released a line of 32-bit RAM SIMMs for Apple's newest Macs.

The company is offering 2-, 4-, 8-, 16- and 32-Mbyte SIMMs for the LC III, Centris 610 and 650, and Quadra 800. Those Mac models use a 32-bit, 72-pin configuration that allows users to add one SIMM at a time, rather than in pairs or four at a time as in older Macs.

Lifetime declined to announce pricing for the SIMMs because of constant fluctuation in demand. "Prices are going all over the place," said a company spokesman.

In other news, Lifetime last month acquired MacSystems Inc., a mail-order Mac memory reseller based in Altus, Okla.

Lifetime Memory Products Inc. is at 305 17th St., Huntington Beach, Calif. 92648. Phone (714) 969-2421 or (800) 233-6233; fax (714) 960-0638. □

Samsung tones up printer with upgrade

By Matthew Rothenberg

Ridgefield Park, N.J. — A new upgrade kit from Samsung Electronics America Inc. promises to give the company's Finalé 8000 laser printer a sharper image and tone up its gray-scale capabilities.

The $995 Image1200 upgrade kit, scheduled to ship this month, comprises a user-installable daughterboard, an extra-fine toner cartridge and 4 Mbytes of RAM. The board uses new halftoning algorithms that enable the 300-dpi printer to output eight-bit halftones at an apparent resolution of 1,200 dpi, Samsung said.

Through the end of this month, users can buy the kit for $699.

Samsung said daughterboard upgrades due later this year will provide the Finalé 8000 with PostScript Level 2 and network faxing.

The $1,995 Finalé 8000 is based on a proprietary engine that prints to letter- or legal-size paper or transparencies at a rate of 8 pages per minute. It includes PostScript Level 1 and PCL 5 interpreters and comes with 35 Type 1 fonts and a TrueType rasterizer. The printer switches between emulations as well as among its LocalTalk, RS-422A serial and Centronics parallel ports.

It runs on a 16-MHz Intel i960 KA RISC chip and ships with 2 Mbytes of RAM, expandable to 18 Mbytes; two 250-sheet input cassettes; and two font-cartridge slots.

Samsung Electronics America Inc., Information Systems Division, is at 105 Challenger Road, Ridgefield Park, N.J. 07660. Phone (201) 229-4066 or (800) 466-0262; fax (201) 229-4069. □

Templates meet U.S. Defense Department standards

By Carolyn Said

Torrance, Calif. — Users in the defense industry can tailor documents to U.S. Defense Department requirements with new templates for FrameMaker, Frame Technology Corp.'s $795 structured-publishing application.

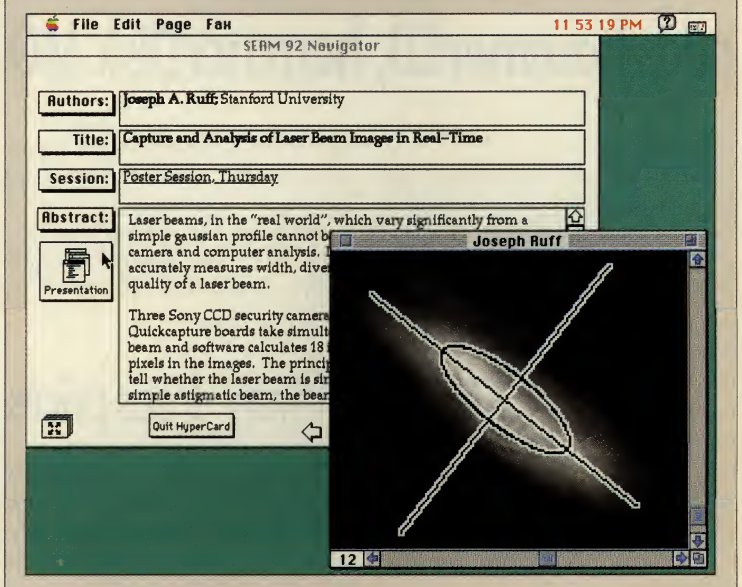
Advanced Technologies Applications Inc. last month released ATA/Doc_Templates, which provides templates in FrameMaker format for Data Item Descriptions that conform to Defense Department system and software-development standards.

ATA/Doc_Templates also will work with FrameBuilder, Frame's application for generating documents compliant with Standard Generalized Markup Language. FrameBuilder for the Mac is due out later this year.

ATA/Doc_Templates ranges from $180 for one standard to $300 for a package that includes six standards. Like FrameMaker, the templates are available for Mac, DOS, Windows and Unix platforms.

Advanced Technologies Applications Inc. is at 3528 Torrance Blvd., Suite 214, Torrance, Calif. 90503. Phone (310) 316-6350; fax (310) 316-3982. □

SCIENTIFIC MAC CONFERENCE ON CD-ROM



Worcester, Mass. — Did you miss MacSciTech's technical conference, held in San Francisco in January 1992? Relax; the scientific and technical users association is offering a complete set of proceedings on CD-ROM. The Official SEAM '92 Conference CD-ROM contains all the abstracts and most of the proceedings from sessions at the Scientific and Engineering Applications of the Macintosh (SEAM) conference. The disc also includes QuickTime movies of keynote addresses. The disc is $79 ($49 for MacSciTech members); quantity discounts are available.

MacSciTech is at 49 Midgley Lane, Worcester, Mass. 01604. Phone (508) 755-5242; fax (508) 795-1636.

VT100-340 TN3270 3179G TEKTRONIX 4105-4010 SCRIPT COMPILER KEYBOARD REMAPPER
VMS UNIX OS/2 MACINTOSH DOS/WINDOWS

PATHWAY ACCESS.
LEAPS TALL
NETWORKS IN A
SINGLE BOUND.

TCP/IP

Faster than a speeding electron, more powerful than a massively parallel computer, able to leap across the largest network. It's PathWay Access. The most feature-rich, high-performance TCP/IP product for DOS/Windows, Macintosh and OS/2 computers. Simple to install and maintain, PathWay Access gives your users unmatched access to remote applications, printers and information. With the click of a mouse, full-featured terminal emulations, keyboard remapping and scripting capabilities are at their command. And, PathWay Access coexists with all popular network operating systems. So, call us today for your 30-day free evaluation copy and let your users be superheros, too.

1 ▲ 8 0 0 ▲ 8 7 2 ▲ 8 6 4 9
IN CALIFORNIA 1▲800▲962▲8649 OR 415▲962▲7202
FAX 415▲962▲0286 sales@twg.com IN EUROPE 322▲718▲0311

WOLLONGONG

STRAIGHT TALK. SOLID SOLUTIONS.

TCP/IP

©1992 Wollongong All trademarks and tradenames are property of their respective holders.

DOS/WINDOWS MACINTOSH OS/2 UNIX VMS
KEYBOARD REMAPPER SCRIPT COMPILER TEKTRONIX 4105-4010 3179G TN3270 VT100-340

FWB cuts drive prices up to 36%, adds hammerCD, hammerDisk MO

By Henry Norr

San Francisco — FWB Inc. last month trimmed its prices and added two new models, a CD-ROM player and a 1-Gbyte magneto-optical drive, to its storage line.

▶ **CD-ROM.** The hammerCD drive, priced at $959, is based on a dual-speed Toshiba mechanism that offers an average access time of 200 milliseconds and a sustained transfer rate of 330 Kbytes per second. It provides multisession Photo CD support and ships with FWB's new CD-ROM ToolKit software.

▶ **MO.** The hammerDisk 1000, based on a Maxoptix Tahiti IIM mechanism, can read and write standard 600-Mbyte and 1-Gbyte cartridges. Average seek times are as fast as 35 milliseconds and transfer rates can reach 4 Mbytes per second, according to the company. A version with 1 Mbyte of cache RAM is $4,589; with a 4-Mbyte cache, it's $4,899.

▶ **Price cuts.** FWB released a new price list incorporating reductions on most of its hardware. Cuts range up to 36 percent.

FWB Inc. is at 2040 Polk St., Suite 215, San Francisco, Calif. 94109. Phone (415) 474-8055; fax (415) 775-2125. □

Affinity drops prices

Boulder, Colo. — Affinity Microsystems Ltd. has reduced the price of all its macro-creation software for students, faculty and employees of educational institutions.

All educational prices will be half the normal retail prices. For example, Tempo II Plus, the company's high-end macro-creating utility, will drop from $179.95 to $89.98. The price of multi-user bundles also has been halved for schools.

Affinity Microsystems Ltd. is at 1900 Folsom St., Suite 205, Boulder, Colo. 80302. Phone (303) 442-4840 or (800) 367-6771; fax (303) 442-4999. □

Software keeps track of changing designs

Can add equations to CAD drawings

By April Streeter

Huntington Beach, Calif. — Design Intent Software Inc. is shipping 3-D modeling software that includes a database to keep track of the myriad facts about an object's design.

Available now for $7,500, Design Intent! lets users create geometry for product or part designs using a standard set of drawing tools, maintain a database of rules about those designs, and create links between database and design sketches so that changes to either are reflected in both.

For example, in the design of a spray bottle, laws of fluid mechanics are input to an editor window that pops up when a user double-clicks on part of the sketch of the bottle. Mathematical equations or expressions that directly affect the appearance of the model can be added to the editor window.

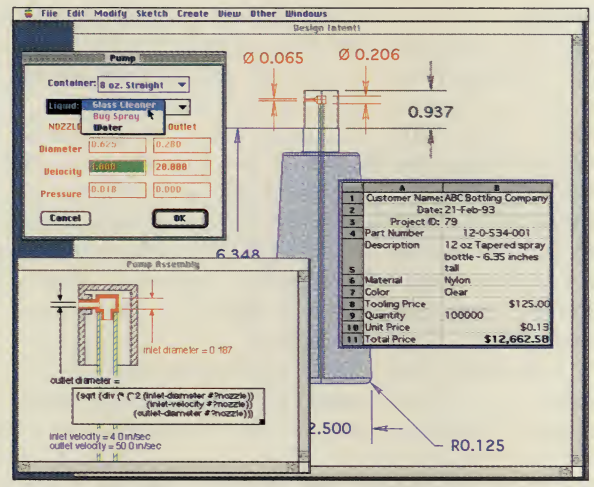
The program also supports System 7's publish and subscribe to allow users to link elements of designs to other applications such as word processors or spreadsheets.

Once relationships between design sketches and the program's rules database are added, the design can be saved as a template in Design Intent!'s object-oriented programming language, which is called Intent!

Intent! lets users add or modify parts of an intricate model without having to recompile or reload entire designs. Intent! also allows designers to custom-tailor interface elements, such as windows, buttons, menus and dialog boxes.

Design Intent! templates can be exported to other CAD programs as DXF (Drawing Interchange File) files, but the program cannot import any file formats other than its own.

Design Intent Software Inc. is at 525 14th St., Huntington Beach, Calif. 92648. Phone (714) 536-1126; fax (714) 536-6069. □



Design Intent! from Design Intent Software allows users to add mathematical equations to shape and model CAD designs.

KEEP UP WITH MacWEEK

Return your MacWEEK renewal application as soon as you receive it!

If you're serious about your Mac you can't afford to miss a single issue of **MacWEEK**, the only resource of its kind for today's dedicated Macintosh professional.

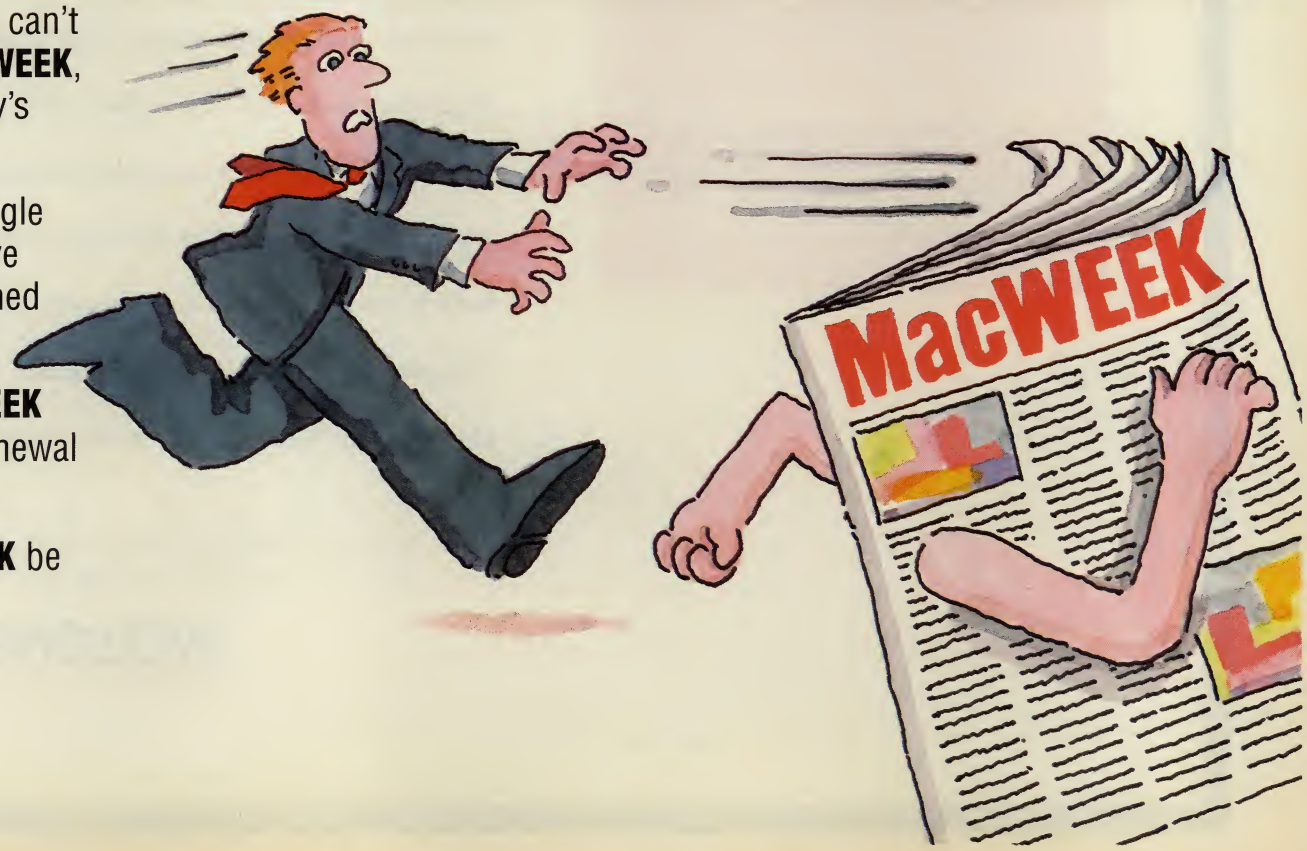
That's because **MacWEEK** is your single best source for timely news, extensive product reviews and lab tests, informed opinion, and expert buying guidance.

Don't delay! Keep your FREE **MacWEEK** subscription coming. Return your renewal application as soon as you receive it.

Don't let your next issue of **MacWEEK** be your last!

RENEW IT MacWEEK OR LOSE IT!

P.O. Box 1765 • Riverton, New Jersey 08077-7363



HyperHIT adds new commands

By Raines Cohen

South Dartmouth, Mass. — SoftStream International Inc. last month shipped an update to its HyperHIT database engine for stack developers.

HyperHIT Deluxe includes the same scripting functions as HyperHIT Relational and adds 25 new commands to the relational-database search engine. The package of HyperCard external commands (XCMDs) works with both Apple's HyperCard and Aldus Corp.'s SuperCard.

New features in the Deluxe version include multiple selections per relation, a unique identifier for each record and script-level record-path manipulation. New commands include 10 data-handling shortcuts and one that formats data for display or export.

The company said it enhanced several commands to improve network performance in the multi-user version, which works over AppleTalk LANs. In addition, HyperHIT Deluxe/Multi-User offers a more efficient and robust database server than before.

"We live on XCMDs," said Jerry Daniels, vice president for technical development at Daniels & Mara Inc., a consulting company in Austin, Texas. "We will likely use HyperHIT as part of our in-house development system. We develop our own front ends, but our customers often need a database to manage their local data."

HyperHIT Deluxe sells for $500 in a single-user package and $700 for a multi-user version.

SoftStream International Inc. is at 10 Twin Ponds Drive, South Dartmouth, Mass. 02748. Phone (508) 991-4011 or (800) 262-6610; fax (508) 991-4223. □

Medical dictionary works with MS Word

Novato, Calif. — WordStar International Inc. now is shipping an interactive medical and pharmaceutical spelling checker for Microsoft Word.

Stedman's 25/Plus for Microsoft Word is an electronic version of Stedman's 25 medical reference book. The package includes more than 200,000 medical and pharmaceutical terms, as well as references for more than 30,000 drug names.

WordStar International offers an electronic medical/pharmaceutical spelling checker for WordPerfect (see MacWEEK, Nov. 15, 1992).

The stand-alone version is $99. A multi-user version — for companies running Word from a server — is $345 for two to five concurrent users. Additional user licenses can be purchased in increments of five, 10 and 20.

WordStar International Inc. is at 201 Alameda del Prado, Novato, Calif. 94949. Phone (415) 382-8000 or (800) 523-3520; fax (415) 883-1629. □

App creates overlays for special keyboard

Richmond, Calif. — IntelliTools Inc. recently released an application that lets users create custom keyboard overlays for its alternative keyboard.

The $69.95 Overlay Maker works with the company's $395 IntelliKeys touch-sensitive enlarged keyboard. The device is targeted at disabled users and children, although it also has applications in retail point-of-sale systems.

With Overlay Maker, which resembles a drawing program, users define custom keyboard layouts, associating any series of key presses and mouse actions with various keys.

Users can add text, pictures, decorative lines and colors to the overlays and print them out to produce a keyboard cover.

Overlay Maker comes with 20 predefined layouts and a library of 200 symbols.

The program supports a special keyboard setup for persons with disabilities who have difficulties with the standard QWERTY keyboard, the company said.

IntelliTools Inc. is at 5221 Central Ave., Suite 205, Richmond, Calif. 94804. Phone (510) 528-0670; fax (510) 528-2225. □

Graphic evidence of Andrew expertise with Mac-to-IBM midrange connectivity.

United States
(800) 328-2696 ext. 43
Europe
(44) 734 894689
International
(708) 349-5440
FAX
(708) 349-5673

See the benefits of Mac ease and IBM midrange power for yourself. Call for your free ***MacMidrange***™ *tour demo diskette.*

From aerospace to city finance to education, Mac-to-IBM midrange solutions from Andrew are helping organizations make fast, smooth, versatile network connections.

■ Using **NetAxcess**,™ our AppleTalk-to-IBM midrange gateway, the City of Oakland can remotely access data on budget development, project planning, financial management, taxes, and executive MIS from three midrange hosts.

■ Grimes Aerospace is using **TCPAxcess**,™ 5250 emulation software to link Macintosh to the AS/400® through a TCP/IP network for terminal services and file transfer. The result is accessible IBM data with point-and-click ease using Mac spreadsheet and desktop publishing programs.

■ Grand Forks Public Schools consider Andrew a class act—we helped link its Mac network to the AS/400 using **Token Axcess-Client**.™ Now 13 schools achieve 5250 terminal emulation through an AS/400 token ring LAN utilizing Apple® Computer's SNA•ps™ software.

Andrew backs you every step of the way with knowledgeable support gained from hands-on experience with hundreds of Mac-to-IBM midrange applications.

So call Andrew today—and get it right the first time.

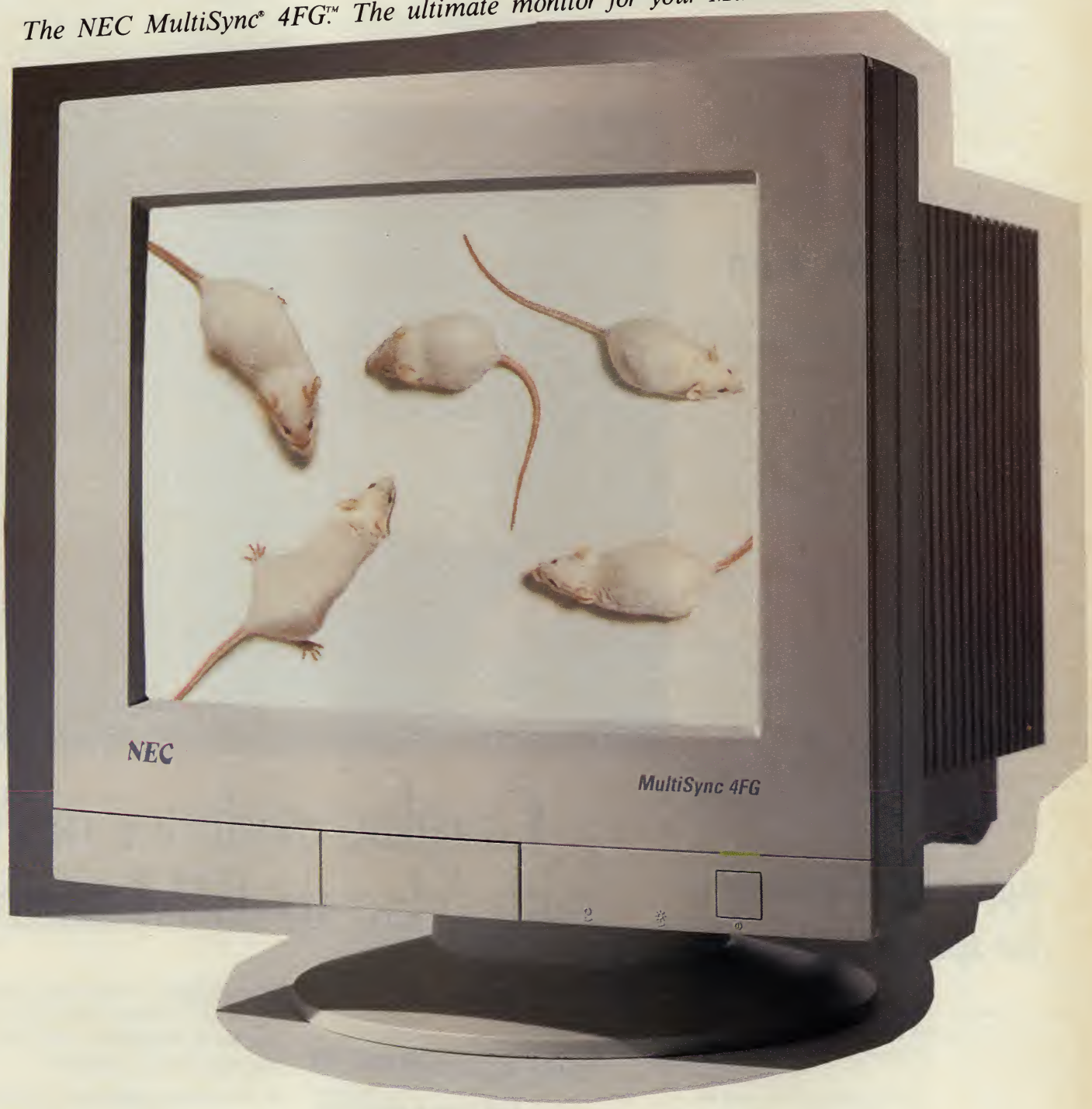
Complete Communications℠

ANDREW

Copyright 1993 Andrew Corporation. TCPAxcess, Token Axcess-Client, NetAxcess are trademarks of Andrew Corp. All other trademarks are property of their respective companies.

Announcing a

The NEC MultiSync® 4FG.™ The ultimate monitor for your Macintosh®.



At NEC, we've developed *hundreds of computer products expressly for Mac systems: from our highly-acclaimed MultiSync monitors, MultiSpin™ CD-ROM readers and Silentwriter® laser printers, to our Professional Graphics Series, which includes our new 27" MultiSync 3PG data monitor and MultiSync 6PG and 9PG Projection Monitors for images as large as 25 feet.*

"

"

–MacUser Magazine
Aug.'92

better mousetrap.

The NEC MultiSync® 3FGx™ monitor.

The least you should do for your Mac®.

In 1992, the only monitor to snag the coveted five-mice rating was an NEC monitor: the MultiSync 4FG. After running it and 13 others through the most rigorous technical evaluation they'd ever used for testing monitors, *MacUser* magazine concluded, "If you're looking for the sharpest display, the NEC MultiSync 4FG should be your top choice." What more can we say? Glad you asked.

Our AccuColor™ Control System prompted *MacUser* to make special mention of the "easy color adjustments." AccuColor lets you adjust on-screen colors, so if you're looking for mouse-tail pink, that's what you'll get.

If, however, color control is not a priority for you, you'll be very happy with NEC's MultiSync 3FGx monitor, which shares almost all of the 4FG's award-winning features. Both monitors produce sharp, bright images, crisp graphics and vibrant colors. An Invar shadow mask provides increased brightness without loss of focus.

Another big idea—the display area. The large 15″ screen (13.8″ active display area) coupled with FullScan™ capability for edge-to-edge images gives you a larger display area than typical 13″ or 14″ RGB monitors.

How do you make an NEC MultiSync monitor work with your Mac? Just plug it in, using NEC's free FG/Mac cable adapter. It works with the Mac's on-board video, so you won't need an add-in video board.*

Both monitors are compatible with the Mac® II family, Quadra™ series, LC's, PowerBooks™ and PC systems. So you can use just one monitor for both types of platforms. *MacUser* noted the "powerful and versatile controls make switching from a Mac to a PC a snap."

And to make these monitors as user-friendly as possible, we've included ergonomic features such as a tilt/swivel base and up-front user controls. Plus, our Reduced Magnetic Field™ technology meets the strict Swedish MPR II guidelines for magnetic field emissions.

There are lots of reasons for considering an NEC MultiSync monitor for your Mac—the sharp, bright images, the vibrant colors, the large display area, the flexibility, the compatibility—to name five. And the ⬆⬆⬆⬆⬆ to name five more.

For more information on our award-winning monitors, call 1-800-NEC-INFO (in Canada: 1-800-343-4418). Or for a complete brochure via fax, call NEC FastFacts™ at 1-800-366-0476, request #62234.

*For Macintosh 640 x 480 resolution, just attach NEC's FG/Mac cable adapter and plug into: Macintosh IIsi, IIci, LC, LCII, IIvx, IIvi, Quadra™ 700, Quadra 900, Quadra 950, Performa™ 400, Performa 600, PowerBook™ 160, PowerBook 180, and the PowerBook 210 and PowerBook 230 with either the DuoDock™ or MiniDock™ Or with an add-in video card: Macintosh II, IIx, IIcx, IIfx, PowerBook 140, PowerBook 145, and PowerBook 170. Get the 640 x 480 FG/Mac adapter free by calling NEC at (312) 622-7427 8:30AM-5PM CST.

All quotes reprinted from *MacUser* magazine, August 1992. © 1992, Ziff Communications Company. *MacUser* and 5-mice logo are registered trademarks of Ziff Communications Company. MultiSync is a registered trademark and AccuColor, FastFacts, FG, FullScan, Reduced Magnetic Field and MultiSpin are trademarks of NEC Technologies, Inc. Silentwriter is a registered trademark of NEC Corporation. All other trademarks are the property of their respective owners. © 1992 NEC Technologies, Inc.

Because ⬆ is the way you want to go. NEC

Special Report

Mixing PBs and PCs

Apple's PowerBook has gained unprecedented popularity in both the IBM PC and compatible and Mac camps for its design, ease of use and price. True, the PowerBook is not the PowerPC. However, there are ways to make it compatible with PCs, so much so that even some no-nonsense PC managers are taking a hard look at the PowerBook. While not always officially sanctioned, PowerBooks are finding their way into PC sites. In this Special Report, MacWEEK addresses the concerns of PC users who want PowerBooks and offers suggestions on how to fit the Apple laptop into a mixed-platform environment.

PowerBook blues: Can PC sites put top-ranked laptops to use?

Enthusiasm for PowerBooks among DOS managers and users has been dampened by compatibility issues. But must that be the case?

By Steve Cummings

Last June, the PowerBook took top honors for on-the-road usability in a "shootout" with 10 DOS-based notebook computers at PC Expo in New York. The judges, corporate buyers from IBM PC and compatible-oriented companies, cited the PowerBook's superior design in such critical areas as screen, keyboard and trackball.

For Mac managers who have had to rely on DOS-based laptops for their mobile computing needs, the irony must seem particularly sweet: the shoe would seem to be on the other foot. For once, the PC establishment should have to figure out how to work with mobile Macs.

Function over passion. Of course, nothing in the world of interoperability is so neat. The shootout judges agreed that their companies would settle for a technologically inferior computer for the sake of full compatibility with current PC standards (DOS, Windows and OS/2). And even after glowing PowerBook reviews in PC magazines, few PC traditionalists are breaking ranks in a rush to buy Mac notebook computers. Old habits die slow, and where there's a need for cross-platform compatibility, hard-boiled managers remain unconvinced that a Mac notebook will give them the interoperability they need.

"We already have a big installed base of PCs, and most of our people are trained in DOS," said Michael Libretti, an analyst and programmer for a large household-products manufacturer in New York. "To introduce a new way of doing things just wouldn't be worth the time and effort."

Although he acknowledged that PowerBooks can share files with PCs, Libretti voiced concern over the potential complications involved in running PC-to-Macintosh file-translation utilities. He said that his company deploys custom DOS-based financial forecasting, sales and invoicing applications, and these would have to be redesigned to run on the Mac.

While the PowerBook's SuperDrive can read PC-formatted disks and, with SoftPC from Insignia Solutions Inc., the PowerBook can run many DOS programs (see story, next page), most corporate buyers insist on full compatibility with the PC standard — even if they personally crave a PowerBook. "From a user's point of view, the PowerBook is a great machine," Libretti said. "The tactile feel of the keyboard is very nice, and I like the fact that the keyboard is recessed so [there is] a place to put your wrist. I also think the trackball is very good." But with the DOS standard firmly entrenched at his company, Libretti said, "There's really no chance our company would buy PowerBooks."

When Montpelier, Vt.–based National Life Insurance Co. was looking for a notebook with which to equip its field agents, it settled on the new ThinkPad 700C from IBM Corp. rather than the PowerBook, even though Douglas Nelson, a technical analyst at the company, gave the PowerBook top marks as one of the PC Expo shootout's judges.

"My impression was that the PowerBook was the nicest of all the notebooks in the shootout," Nelson said. But, like other wary corporations where PCs predominate on the desktop, National Life decided on a portable computer to match its installed base and didn't consider the PowerBook a realistic option.

"We do have a few Macs in certain departments like Creative Services, but in general our company has standardized on IBM [PCs] and compatibles," Nelson said. The insurer is moving to OS/2, however, and while the PowerBook's SuperDrive can read OS/2 formatted disks, the machine won't run OS/2 using SoftPC.

Autonomy on the road. PowerBooks are making inroads into corporate bastions of PC-hood through the usual route — the back doors left open by relatively autonomous departments. At Los Angeles-based oil giant ARCO, for example, where PCs rule the corporate roost, PowerBooks now travel with the company's highly mobile staff of internal auditors. While the auditors still need to access data stored on mainframes and PCs, such information is readily available over company networks, or on PC disks that can be read by the PowerBook.

"We were way overdue for a new portable when the PowerBook came out," said James Callinicos, senior information systems support specialist at ARCO's Internal Audit Department. Previously, desktop Macs were used by managers at the Internal Audit Department's home office, while field auditors carried DOS-based laptops from Toshiba America Information Systems Inc. of Irvine, Calif. At that time, managers successfully employed SoftPC on desktop Macs to run the same suite of DOS applications used by auditors on the road. Callinicos said that at the time he was contemplating a switch to a smaller and more powerful notebook that could run a graphical user interface such as Microsoft Windows. The PowerBook 170's vivid, active-matrix LCD screen made the Mac a strong contender over garden-variety DOS notebooks, whose passive-matrix design makes the screen pointer hard to see, Callinicos said. Although he did consider the Toshiba 4400C, a high-end model with an active-matrix color screen, Callinicos decided the Toshiba was too expensive and too heavy when compared with the PowerBook.

But it was the PowerBook's reduced support requirements that finally tipped the scales. "Who was going to support a Windows effort?" Callinicos said. "If something goes

See PowerBook, Page 16

STEVE LYONS

PowerBook-hungry PC users find ways to link to DOS

Running DOS on a PowerBook may not be for everyone, but for those who need DOS and want PowerBooks, it's the right choice.

By Steve Cummings

To inveterate PC users sorely tempted by the PowerBook's ergonomic luxuries, Apple offers this tantalizing sweetener: The PowerBook can run DOS software. So, just how practical is the DOS PowerBook?

SoftPC, a DOS emulation software package from Insignia Solutions Inc. reportedly can turn a PowerBook into a DOS-compatible computer. However, while SoftPC does, by most accounts, work as advertised, users must tolerate some performance and compatibility limitations.

According to its manufacturer, SoftPC is compatible with nearly all DOS-based programs The latest version of the package, SoftPC with Windows, comes with Microsoft Windows 3.1 and runs Windows programs. SoftPC with Windows, however, is recommended only for 68040-based Macs, such as Quadras, which leaves out current PowerBook models.

DOS without a PC. Apple itself depends on SoftPC to run its sophisticated corporate tax software, an MS-DOS package not available for the Mac. According to Dan Benoit, senior tax-systems analyst at Apple, SoftPC has proven compatible with the tax software and everything else his group has thrown at it.

"SoftPC works fine with graphically intense applications and even with the Microsoft CD-ROM extensions (software device drivers required to access CD-ROM drives on a PC)," Benoit said. Nor has Apple had trouble running programs that need hardware-dependent expanded memory, he said.

But Apple's tax department runs SoftPC on a pair of fast Quadras amply endowed with memory. For the PowerBook user with more modest firepower, SoftPC presents several drawbacks.

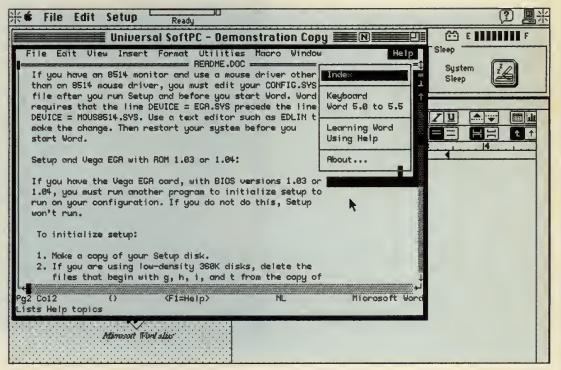
For one thing, DOS programs run relatively slow under SoftPC. In benchmark tests published in August 1992 by PC Magazine, a PowerBook 170 equipped with the previous version of SoftPC was rated as comparable to an 11.8-MHz PC. By contrast, today's typical PC notebook runs at 20 to 33 MHz.

SoftPC also consumes substantial amounts of memory — 1.4 Mbytes at a minimum for the base version and 4.7 Mbytes for the Professional version that supports extended and expanded memory and emulates a math coprocessor. And while SoftPC successfully emulates an Intel 286 microprocessor, it won't work with applications that require the special capabilities of the 386 and 486 processors.

JOHN GREENLEIGH

Remote control. For reasons such as these, many users choose other methods to run the occasional DOS program while they're on the road. And often, users find that it's enough to transfer files between their PowerBooks and PCs. Traveling attorneys from the Menlo Park, Calif., branch of law firm Weil, Gotshal and Manges run DOS software via a telecommunications link to the office's Ethernet network, said Daniel Siegel, an attorney at the firm.

"In our particular office, the staff is on PCs and the attorneys have PowerBooks or desktop Macs," Siegel said. The reason for the dichotomy: The firm's New York headquarters dictates a set of DOS-based applications for administrative functions, while the attorneys prefer Macs for their personal use.



Shown above is a PowerBook running Microsoft Word for DOS using Insignia Solutions' SoftPC. Although SoftPC with Windows lets users run Windows applications, it is recommended only for 68040 machines. The Asanté EN/SC-10T PB SCSI box lets PowerBook users access an Ethernet network.

At the office, attorneys and staff alike routinely exchange files between the two platforms via an Ethernet network, Siegel said. Occasionally, however, file exchange alone is not enough — there are still some DOS programs that have no equivalent on the Mac.

Next to commandeering a staffer's PC, the simplest solution is to run the DOS program from the PowerBook over the network via Timbuktu 5.0, cross-platform networking software from Farallon Computing Inc., Siegel said. With Timbuktu, Windows programs running on the PC appear on the Mac's screen and can be controlled via the Mac's mouse and keyboard.

On the road, Siegel accomplishes the same thing by connecting to the network via modem. This strategy requires AppleTalk Remote Access software, which implements the AppleTalk network protocol over a standard modem connection.

"There have been a few times I've wanted a DOS laptop to run a particular program," Siegel said. "I've used AppleTalk Remote to call up the network and do it that way. It may be a little slower, but it's certainly easier than carrying two laptops with you." Siegel said that, in trying an earlier

See SoftPC, next page

Making the PowerBook-to-Ethernet connection

Cosmopolitan PowerBook users who want connections outside the Macintosh world need a way to link their notebooks to Ethernet networks. The dominant standard for networks, Ethernet connections allow high-speed sharing of files, printers and other resources between disparate types of computers.

Ethernet in a box. Plug-in Ethernet cards provide the fastest and tidiest Ethernet hardware connection but require a Macintosh with expansion slots, something PowerBooks lack. An external device that adapts one of the machine's ports to the Ethernet protocol provides the next best solution. Although they give the user something else to lug around, these devices are reasonably compact. All come with the necessary cables.

Dayna Communications Inc.'s pocket-size SCSI/Link Ethernet adapter, for instance, measures 3 by 4.4 by 1.5 inches. Four models are available: Three provide different combinations of Ethernet connectors (thin, thick and 10BASE T), and one model, the 3-in-1, includes all three connectors. All include two SCSI connectors so that the device can be part of a SCSI chain.

Technology Works Inc.'s Ethernet SC (PB) comes in two connection configurations, one for thin and thick, the other for thin and 10BASE T. At 5.5 by 7.5 by 1.5 inches, Ethernet SC is somewhat larger than the Dayna units. Several other companies, including Compatible Systems Corp. of Boulder, Colo.; Focus Enhancements Inc. of Woburn, Mass.; Asanté Technologies Inc.; and others, also market SCSI-to-Ethernet boxes.

The LocalTalk heroes. SCSI-to-Ethernet adapters won't help users of PowerBook Duos, which lack a SCSI port in the computer itself (the Duo's SCSI port is part of its desktop docking unit). For Duos, Dayna offers the DaynaPORT E/Z, an external Ethernet adapter that plugs into the LocalTalk serial port.

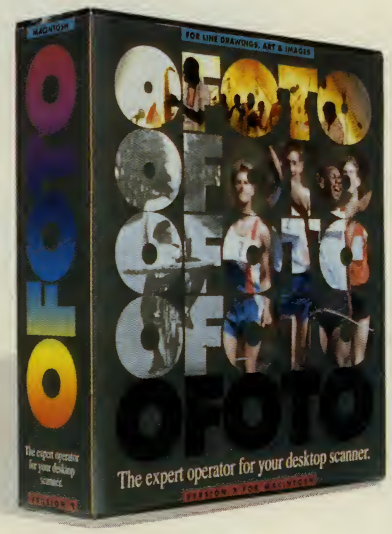
Because of inherent hardware limitations, external adapters for SCSI and serial ports run significantly slower than a plug-in Ethernet board. However, the DaynaPORT E/Z performs faster than a standard LocalTalk connection because it uses the fast LocalTalk protocol, according to a Dayna spokesperson.

LocalTalk provides yet another way to connect a PowerBook to an Ethernet network, but this solution requires an accessible Mac already on the network. After cabling together the LocalTalk ports of the two machines, the user can then run software such as Farallon Computing Inc.'s PowerPath or Sonic Systems Inc.'s PowerBridge to access the Ethernet file services, printers and other devices.

Finally, if the user is willing to tolerate much slower performance, a dial-in connection to the network via a high-speed modem (9,600 or 14,400 bps) provides another alternative. The best way to ensure an easy, efficient telecommunications connection is via an AppleTalk Remote Access server or by using software such as Farallon's Liaison. However, dial-in links to non-Macintosh computers also are possible. — *By Steve Cummings*

The world's most powerful personal scanning software announces support for color, plus new features that make beautiful results — from Macintosh® to desktop printer to printing press — as quick and easy as point-and-click!

FOR LINE DRAWINGS, ART & IMAGES



GREAT RESULTS FROM SCAN TO PRINT

OFOTO

The expert operator for your desktop scanner.

CALL (800) 231-SCAN
FOR OFOTO VERSION 2 UPGRADE INFORMATION OR PRODUCT LITERATURE.

Macintosh is a registered trademark of Apple Computer, Inc.
Ofoto is a trademark of Light Source Computer Images, Inc.
©1993 Light Source. All rights reserved.

PowerBook

From Page 14

wrong with Windows, you've got about eight places to look, and trying to sort out problems over the phone can be really tough. Supporting the Mac is much easier." So much easier, Callinicos said, that he was able to cut the support staff from five people to just one after moving to the PowerBook.

Happy multimedium. The PowerBook also has found a niche at some companies already practicing mixed-platform computing. Although most of its departments rely on PCs, Honeywell Inc. uses the Macintosh to develop and maintain a custom multimedia application built with Authorware, a cross-platform multimedia development package from San Francisco-based Macromedia Inc.

According to Jack Wright, manager of Honeywell's Multimedia Resource Center in Phoenix, the Honeywell application consists of a database of presentations portraying every aspect of the company's Industrial Division and its products. The database is distributed on both Windows and Mac platforms to hundreds of field salespeople, who use it in interactive sessions with customers.

DOS-based notebook computers simply don't provide the features and performance required for multimedia applications, Wright said. "We have a big issue with the ability to deliver multimedia on DOS notebooks because the power just isn't there. On the PowerBook, we can run in 256 colors [using external LCD panels] at great speed, but everything starts to fall apart when you get over to a 386 with VGA and 16 colors," he said.

Despite their performance advantages, however, PowerBooks are very much in the minority at Honeywell, Wright said. "Some people insist on running their DOS applications. I would get a lot further selling PowerBooks if they could run DOS apps directly."

Wright said he was aware of SoftPC but considered it too cumbersome and did not think its performance could meet user expectations. "The basic issue is usability. We want [the compatibility] embedded deeply in the machine so the computer automatically knows what to do with whatever software you give it. We don't want to deal with it ourselves on a higher level."

Even if users don't require a Mac that seamlessly runs all DOS programs and instead turn to other solutions, the complexities of transferring files between the two platforms remains a barrier to full acceptance of any Mac, including the PowerBook, Wright said. "We have this incredible problem with file translation. It's supposed to work, and it kind of does, but you have to know exactly which software version created the file, and you have to have the right version of the translator."

With the appearance of applications that run identically on both Windows and the Mac, compatibility concerns are diminishing. Theoretically, no technical barriers prevent users who fancy the PowerBook from working on an equal footing with corporate PCs. In actuality, however, practical corporate concerns over performance and support for an additional platform as well as nagging doubts about translation inconsistencies will preclude widespread adoption of PowerBooks for the immediate future. □

SoftPC

From previous page

version of SoftPC, he had found it to be slow and to suffer from occasional incompatibilities.

The access road. When PowerBooks replaced Toshibas at Los Angeles-based ARCO's Internal Audit Department (see story, Page 14), SoftPC no longer was needed to ensure that the audit department's desktop Macs were compatible with the DOS notebooks. But since the rest of ARCO had standardized on the PC, PowerBook-equipped auditors do rely on another Insignia Solutions product, AccessPC, to simplify file sharing with DOS machines.

Like Dayna Communications Inc.'s DOS Mounter and Apple's Macintosh PC Exchange, AccessPC allows the PowerBook to mount a PC floppy disk directly on the desktop without requiring the user to run Apple File Exchange. "You can set up file associations based on file names so that when you double-click on a DOS file the right Mac application will open it," said James Callinicos, a senior information systems support specialist at ARCO.

While the PowerBook may not be the notebook computer for those heavily dependent on DOS software, when nothing short of the actual DOS program will do the job, savvy mobile PowerBook users usually can find a way to run it. □

Product Info

ASANTÉ TECHNOLOGIES INC.
Asanté EN/SC-10T PB: $449
Asanté EN/SC PB: $549
404 Tasman Drive, Sunnyvale, Calif. 94089
Phone (408) 752-8338 or (800) 622-9686;
fax (408) 752-8599

DAYNA COMMUNICATIONS INC.
DaynaPORT SCSI/Link PB: $429
DaynaPORT SCSI/Link-3 PB: $499
DaynaPORT E/Z: $399; **DOS Mounter:** $89.95
50 S. Main St., Suite 530, Salt Lake City, Utah 84144
Phone (801) 531-0600; fax (801) 359-9135

FARALLON COMPUTING INC.
PowerPath: $149; **Liaison:** $399
Timbuktu: $199; $299 (2-pack); $999 (10-pack)
2470 Mariner Square Loop, Alameda, Calif. 94501-1010
Phone (510) 814-5100; fax (510) 814-5020

INSIGNIA SOLUTIONS INC.
Universal SoftPC: $165; **AccessPC:** $99.95
SoftPC Professional: $325
526 Clyde Ave., Mountain View, Calif. 94043
Phone (415) 694-7600 or (800) 848-7677;
fax (415) 964-5434

SONIC SYSTEMS INC.
PowerBridge: $149
333 W. El Camino Real, Suite 280, Sunnyvale, Calif. 94087
Phone (408) 736-1900; fax (408) 736-7228

TECHNOLOGY WORKS INC.
Ethernet SC (PB): $429
Ethernet SC-T (PB): $429
4030 Braker Lane W., Suite 350, Austin, Texas 78759-5319
Phone (512) 794-8533 or (800) 688-7466;
fax (512) 794-8520

Create big production numbers, without spending big production numbers.

It's been said that in order to make movies, you have to sell your soul and use the hard cash to finance the production. Now, fortunately, all that won't be necessary.

Because all you need is some imagination and the items on this page.

The Apple® **QuickTime Starter Kit** is the easiest way to get started. QuickTime lets you take advantage of programs that add exciting video, animation and digital sound to Macintosh computers.

For example, **Adobe Premiere 2.0** allows you to combine video, audio, animation, still images and graphics and add them to your movies. It even lets you create special digital effects.

The Editing Aces Suite, featuring **RasterOps Moviepak,** MediaTime and VideoExpander II is a single-slot solution for full-motion digital video recording, full-screen playback, CD-quality sound and print-to-tape.

Then there's the **DigitalFilm** card, from SuperMac – a QuickTime video production system that lets you capture full screen video and output it directly to tape at 30 frames per second.

Passport Producer, by Passport Designs, is a powerful program that lets you quickly and easily import, assemble and accurately synchronize slide shows, graphics, text, animation, QuickTime movies, digital audio and MIDI music.

Aldus Persuasion 2.1 has everything anyone needs to whip up a creative presentation, including outlines, overhead transparencies or 35 mm slides, speaker notes and handouts in no time.

Radius VideoVision gives you professional-quality desktop video production capabilities in a low cost, easy-to-use system. It also allows you to output integrated audio, graphics and video directly to video tape for bringing any of multimedia presentation to life.

To store and retrieve information, the 2 gigabyte **PLI MiniArray** splits data evenly across two drives. The result? Blazingly fast access and throughput for the kind of speed and power today's video solutions demand.

Of course, running powerful software requires a powerful computer. That's what you get with the **Apple Quadra 950.** With its 33 MHz Motorola 68040 microprocessor, faster graphics architecture and improved SCSI and NuBus capabilities, handling even Gone With The Wind will be a breeze.

Of course, all this can bring whole new levels of excitement to any industry or application, from film to education, off-line editing to medicine to presentations.

To receive a faxed list of QuickTime dealers near you, just call **1-800-531-7846**.

And bring your first film in under budget.

MERISEL℠
World Class Distribution™

Merisel is an Apple Authorized Distributor.

All products mentioned are the registered trademarks of their respective companies. ©1993 Merisel, Inc. Corporate Offices: 200 Continental Blvd. El Segundo, CA 90245 (310) 615-3080

Super, fantastic closeout prices!!!

These chassis

Time to Drive a Hard Bargain!*

We're closing out our ZFP™, Cirrus™ and Silverscanner™ models!

40MB to 1.2MB capacities available

- La Cie is discontinuing our classic zero foot print (ZFP) and Cirrus hard drive cases in favor of newer, sleeker body styles.
- We're not fooling around—we're blowing out every ZFP and Cirrus hard drive in inventory at once-in-a-lifetime bargain prices.
- These are top quality, award winning drives. All La Cie ZFP and Cirrus hard drives deliver the latest in high-performance Quantum technology.

All La Cie ZFP and Cirrus drives include:

- FREE Silverlining hard disk management software ($149 value)
- 2-year Limited Warranty on parts and labor
- Unlimited TOLL-FREE technical support
- FREE switchable termination ($50 value)
- All drives are burned-in and tested
- SCSI cables included
- Apple System installed; ready to plug and play
- Universal Power Supply
- Approved by FCC and UL.

Seeing is believing! Award-winning closeout!

La Cie is replacing our original Silverscanner (1992 World Class Award winner) with a newer model. Now can you can enjoy the rich imagery of our original Silverscanner at cheap thrills prices (perfectly balanced color to our shadowy details to our crisp clean curved lines). But don't wait! The only thing limited about our state-of-the-art Silverscanner is our inventory. Don't let this one-pass beauty pass you by this time. Call us and order one right now, before they're all gone!

Closeout! Original La Cie Silverscanner Limited Supply!

Silverscanner
with Color It! and Read-It O.C.R. Pro
Was! ~~$1399~~ Now! $999

Silverscanner
with Photoshop and Read-It O.C.R. Pro
Was! ~~$1799~~ Now! $1349

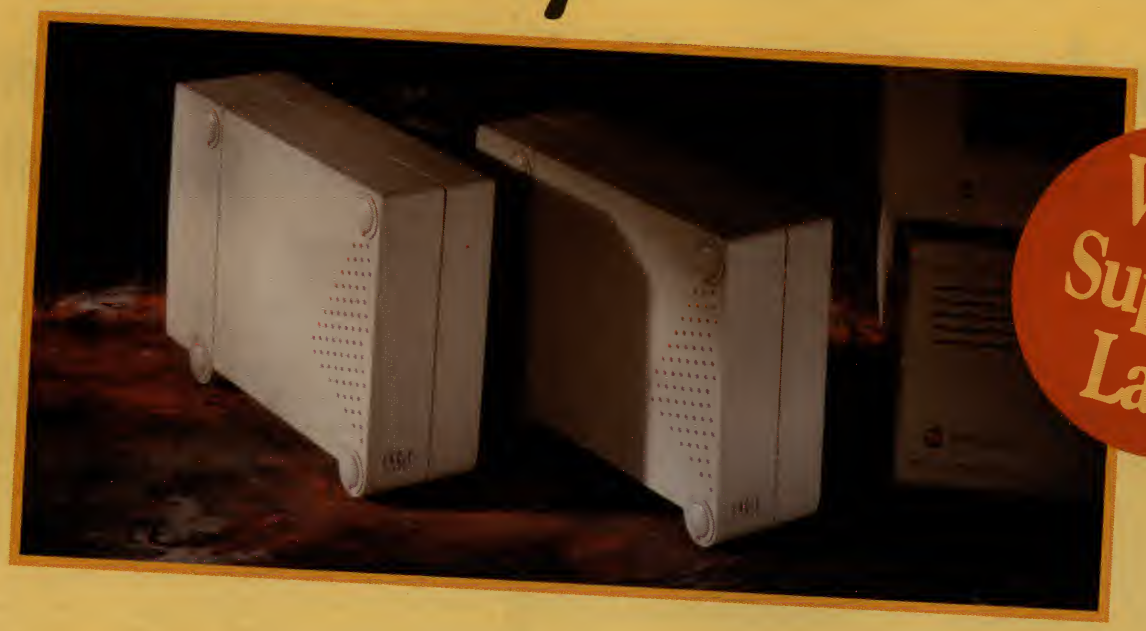
Silverscanner
with Photoshop, ColorStudio and Read-It O.C.R. Pro
Was! ~~$1899~~ Now! $1449

are history!!!

Super, fantastic closeout prices!!!

MACWORLD MW EDITORS' CHOICE

MACWORLD 1992 World Class Awards



While Supplies Last!*

BEST! Macworld Hard Drive under 80MB

BEST! Macworld Hard Drive 80-200MB

BEST! Macworld Hard Drive over 200MB

BEST! Macworld Color Scanner Silverscanner

FCC Certified!

TOLL-FREE! Technical Support

TOLL-FREE! Customer Service

FREE! Silverlining™

Switchable Termination!

Universal Power Supply!

30 Day Money Back Guarantee*

Call us now for super, fantastic, incredible closeout prices!!!

Quantum	ZFP Was!	ZFP Now!	Cirrus Was!	Cirrus Now!
40MB	~~$299~~	$239	~~$319~~	$289
85MB	~~$379~~	$269	~~$399~~	$319
120MB	~~$499~~	$409	~~$519~~	$459
127MB	~~$439~~	$339	~~$459~~	$389
170MB	~~$469~~	$369	~~$489~~	$419

Quantum	ZFP Was!	ZFP Now!	Cirrus Was!	Cirrus Now!
240MB	~~$689~~	$479	~~$709~~	$529
525MB	~~$1249~~	$999	~~$1269~~	$1049
700MB	~~$1429~~	$1259	~~$1449~~	$1309
1.05GB	~~$1769~~	$1399	~~$1789~~	$1449
1.2GB	~~$1999~~	$1649	~~$2019~~	$1699

Other capacities may be available on ZFP and Cirrus closeouts. Call for details.

These low, low, closeout prices will disappear with our inventory, so call us now for fast, friendly service! And as always, your satisfaction is guaranteed!

800-999-1386

LACIE LIMITED
A QUANTUM COMPANY

*International 503-520-9000 Fax 503-520-9100 6 a.m.-6 p.m.PST Mon.-Fri. VISA, MasterCard, C.O.D. and approved purchase orders accepted**

*Call for details on terms, conditions, limited money back guarantee and free offers. System 7.0.1 software included only with certain configurations. ZFP+ Drives do not have switchable termination. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP+, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscanner, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. © Copyright 1992-93 La Cie, Ltd. 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

Gateways

- Networking
- Communications

Asanté to offer departmental hub

Seven-slot chassis to support 72 ports

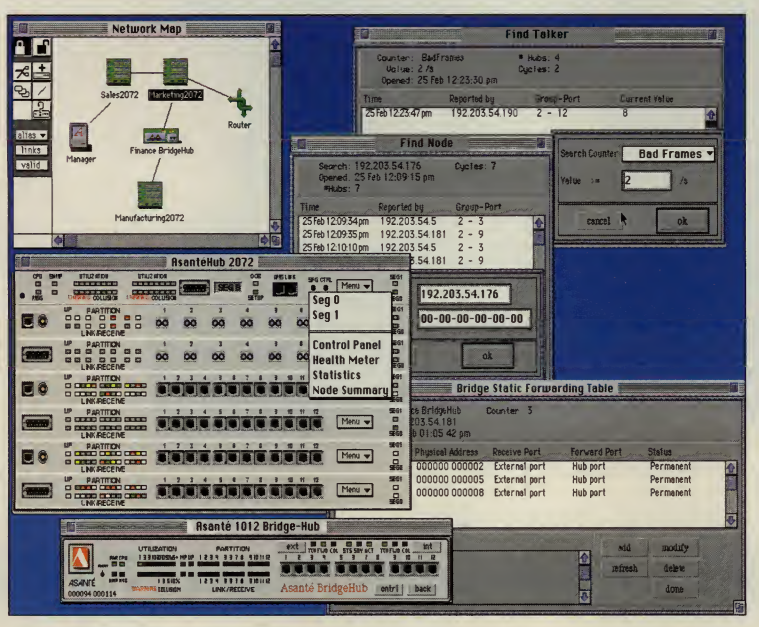
By April Streeter

San Jose, Calif. — Asanté Technologies Inc. is moving up the network-device food chain.

This week the company will announce plans to move into the fast-growing departmental Ethernet market, unveiling a 72-port-capacity hub, a bridging module for its 12-port hub and an upgrade to its hub-management software.

Asanté's new offerings include:

- **AsantéHub 2072.** Due to ship in May, the seven-slot 2072 chassis will cost $1,095. Twelve-port cards will run between $725 and $1,245, which Asanté said can lower per-port costs to less than $90. A redundant power supply for the hub will be available in May.
- **AsantéBridge 1012**. Also due in May is a $1,999 bridge card that will fit into the expansion slot of the company's $1,299 12-port workgroup hub. The card will bridge between the 1012 hub and one other Ethernet connection using a Fujitsu Inc. SPARClite RISC processor. A variety of SPARClite-based bridge cards for the larger 2072 hub also are slated for the third quarter, according to Asanté.



A May upgrade to Asanté's hub-management software will support the company's new bridge module and 72-port hub. Version 2.2 will let an administrator quickly locate users or busy nodes as well as keep a log of a network's performance.

The company said the new bridges are based on an architecture that could be expanded in the future to include other services, such as routing and switching.

- **AsantéView 2.2.** A new release of the company's $1,499 hub-management software will add support for the 1012 bridge card as well as the 2072 hub. The software will provide a trio of new features: Find Talker will ferret out nodes that are sending copious numbers of packets; Find Node will locate users based on low-level Media Access Control addresses; Database Logging will keep a list of network performance statistics.

Upgrades from Version 2.1 will be free.

Asanté Technologies Inc. is at 821 Fox Lane, San Jose, Calif. 95131. Phone (408) 435-8401; fax (408) 432-1117. □

Administration broadcasts support for PCS spectrum bill

By Mitch Ratcliffe

Washington — The Clinton administration and the U.S. House of Representatives last week acted to open to commercial use a portion of the radio spectrum that may provide a home for wireless communicators.

Since 1990, Apple and various companies have lobbied for access to radio frequencies they intend to use for personal communications services (PCS). The system will let devices use low-power transmissions to communicate over a network of radio towers and in-building transceivers. A lack of clear frequencies has hindered PCS growth.

The industry may find its foothold in frequencies currently owned by the federal government. Congress this month likely will pass House Resolution 707, the Emerging Telecommunications Technology Act, which would reallocate through a series of raffles 200 MHz of spectrum to PCS. The bill awaits final approval by the full House; it was passed by the previous two sessions of Congress, but former President Bush vetoed it both times.

The Clinton administration stoked the fires of frequency conversion last week during a flurry of technology-related announcements (see story, Page 28).

President Clinton last week said he would propose legislation that will require the government to accept bids for the 200 MHz of spectrum targeted by H.R. 707. The government currently relies on a lottery system, which awards spectrum free to the winners of regional drawings. Auctioning off government frequencies would reap $4.1 billion over four years, the administration said.

"Auctions are a great idea if the purpose is to lead to a more efficient use of spectrum," said Ira Brodsky, an analyst with Datacomm Research Co. of Wilmette, Ill. "But the question here is whether this is an auction or just user fees."

Democrats and Republicans alike have opposed auctions of radio frequency because they may not be fair to entrepreneurs with innovative communications technologies, said an aide to Rep. Edward Markey, D-Mass., one of H.R. 707's sponsors.

"An auction to the person with the deepest pockets is unacceptable," the aide said. "Rep. Markey believes there must be some recognition of the public interest in the award of spectrum." □

AlisaMail delivers connections for X.400, Unix mail systems

By Nathalie Welch

Pasadena, Calif. — Alisa Systems Inc.'s mail-integration system this month will gain direct links to X.400- and Unix-based mail systems, as well as a Windows version of its directory searching software.

With X.400 and SMTP (Simple Mail Transfer Protocol) connections, the VAX-based AlisaMail will be able to exchange electronic mail with X.400- and SMTP-based E-mail packages without Digital Equipment Corp.'s MailBus message router, which is currently required.

The company said the full range of X.400 attributes is supported, including generic message commands. SMTP-specific features, such as UUEncode and UUDecode compression, also are supported.

AlisaMail starts at $10,000 for a base configuration. Upgrades are free.

Due in the second quarter and priced at $550 for up to 99 users, Alisa's PeopleFinder for Windows will let users access AlisaMail and its universal directory.

AlisaMail consists of a SQL-based relational database engine called the Information Switch, which requires a VAX 3000 series minicomputer. The engine stores all messages and interfaces with AlisaMail's Mail Integration Servers, which handle message delivery and directory synchronization between supported E-mail systems.

Version 4.0, released last year, facilitates the exchange of mail between Mac-based packages such as Microsoft Mail and CE Software Inc.'s QuickMail, as well as Novell Inc.'s Message Handling Service, DEC-based VMSmail and ALL-IN-1 Mail, and a variety of packages for IBM PCs and compatibles.

Alisa Systems Inc. is at 221 E. Walnut St., Suite 175, Pasadena, Calif. 91101. Phone (818) 792-9474; fax (818) 729-4068. □

Vendors push switch offerings

By April Streeter

San Francisco — Users eager to pull a switch to speed sluggish LocalTalk and Ethernet network segments are facing a growing number of options.

Switches can ease LAN bottlenecks by isolating nodes and passing multiple packets between multiple ports simultaneously, resulting in increased total throughput.

Tribe Computer Works Inc. of Emeryville, Calif., last week shipped the TribeStar, its $1,795, eight-port, LocalTalk-to-Ethernet switch, which it said will invigorate sluggish LocalTalk networks.

This week, Synernetics Inc. of North Billerica, Mass., will introduce a $12,500, eight-port Ethernet card for its LANplex switching hubs that the company said will increase throughput by 35 percent. And last month, Ungermann-Bass Inc. of Santa Clara, Calif., announced the DragonSwitch, a $14,400, 16-port Ethernet switching card for its AccessOne hub.

It was Kalpana Inc., also of Santa Clara, that brought switching into the mainstream last year with the EPS-500, a $3,500 box that bumps up throughput in networks of fewer than 15 Ethernet segments.

Both Kalpana and Tribe use on-the-fly circuit switching, which means their devices locate the destination port before forwarding packets; they also can handle simultaneous transactions. This is similar to how the telephone system and Asynchronous Transfer Mode (ATM) switches handle data transfer.

See Switches, Page 22

Ethernet switches

COMPANY	PRODUCT	PRICE	MEDIA
Synernetics Inc.	Ethernet Switching Module	$12,500	Ethernet/FDDI
Tribe Computer Works Inc.	TribeStar	$1,795	LocalTalk/Ethernet
Ungermann-Bass Inc.	DragonSwitch	$14,400	Ethernet

© 1993 Asanté Technologies, Inc. All brand names and products are trademarks or registered trademarks of their respective holders.
*Specify Macintosh or Windows version. AsantéVeiw 2.0 owners, ask for your free upgrade.

AsantéView management software. The most affordable health care for your network.

Asanté Technologies™ offers the most cost-effective way to take care of your departmental Ethernet network. Presenting AsantéView™, the management software that works with the AsantéHub™ to help you effectively monitor and control your network. Together they give you a network management system offering 16 performance-monitoring statistics, network health meters, and direct control at the hub and port levels. All from your choice of a Windows® PC or Apple® Macintosh® management station.

AsantéHub & AsantéView. The cure for networking headaches.

It's easy to monitor your network's vital signs.

The system gives you even greater control with unique alarm thresholds to warn you when unacceptable traffic or error levels occur. And can even trigger your pager before a problem arises so you can proactively administer a little network medicine.

AsantéView in-band network management software supports the widely accepted Simple Network Management Protocol (SNMP), and can automatically draw a map of your network which simplifies the learning and administering of IP addressing.

AsantéView out-of-band management software is just as powerful as the in-band software, and uses the same GUI. By plugging your network management station directly into the RS-232 port, or by using a dial-up modem, you can simultaneously manage up to 12 AsantéHubs from anywhere you have access to a telephone.

No one takes care of networking like Asanté.

The Asanté network management system is the heart of our complete family of networking products. So if you're looking for a single source for all your departmental networking solutions, Asanté is just what the doctor ordered.

Call us today for your free AsantéView demo disk*, 1-800-662-9686, extension 101.

ASANTÉ™
ALL THE RIGHT CONNECTIONS™

Resellers: Asanté products are available from Ingram Micro, Tech Data, and Merisel.

Telebit dial-in routers link remote workgroups to LAN

By April Streeter

Sunnyvale, Calif. — Telebit Corp. last week unveiled two dial-in routers that can link remote sites to an Ethernet LAN.

The NetBlazer PN, due in May for $2,699, will have one built-in V.32bis modem and will include support for AppleTalk Remote Access, AppleTalk, TCP/IP and IPX (Internetwork Packet Exchange).

The NetBlazer PN2, a version of the router without a modem, will be available for $2,299.

The PN and PN2 each will have a switchable, three-media Ethernet port that will support thick, thin or 10BASE T wiring. Through a synchronous serial port, the PN supports a variety of wide-area network media, including switched 56, ISDN (Integrated Services Digital Network), or 56- and 64-Kbps leased lines. LEDs on the front panel will show telephone line status and packet collisions.

Telebit said a modem card with V.Fast support that can be swapped will be offered as soon as that 28.8-Kbps technology is available.

The PN routers are the same size as Telebit's WorldBlazer modems. Like several other products announced recently, Telebit's new devices combine many services in small, affordable packages for branch offices (see MacWEEK, Feb. 15).

Since many remote or branch offices do not have dedicated network managers, PN configuration consists of plugging in the box and inserting a floppy disk into the router's built-in drive. Software updates load automatically. An administrator can do the rest of the setup over a remote connection, Telebit said.

Telebit Corp. is at 1315 Chesapeake Terrace, Sunnyvale, Calif. 94089. Phone (408) 734-4333; fax (408) 734-3333. □

IPT queues up print-management util

By April Streeter

San Luis Obispo, Calif. — Information Presentation Technologies Inc. this month plans to ship a Macintosh printer-management utility that works with the company's line of spoolers.

Print Queue Manager, which will cost $39 for a single-user version, works on Ethernet networks that have Sun Microsystems Inc. SPARCstations or NeXT Computer Inc. servers.

Print Queue Manager has two password-protected modes. QueueView lists status information for print jobs waiting for a networked printer, including elapsed print time for the current printing job. An authorized user can move waiting jobs to different printers, change a job's position in a queue, suspend a job or have it reprint after a designated time lag.

The software also keeps a log of printing errors associated with spooled print jobs.

The print-management software is part of software IPT developed for Canon U.S.A. Inc.'s GetThePicture image-database package.

IPT Inc. is at 555 Chorro St., Suite A, San Luis Obispo, Calif. 93405. Phone (805) 541-3000 or (800) 233-9993; fax (805) 541-3037. □

3Com packages WAN router, card

By April Streeter

Santa Clara, Calif. — 3Com Corp. last month introduced a wide-area router and router card that complement the company's simplified LAN-WAN networking scheme.

The router and card depend on 3Com's Boundary Routing software to handle maintenance of routing tables and other administrative tasks. The routers function as forwarding bridges with the added ability to filter local traffic from packets bound for the wide-area network. According to 3Com, remote users can install the routers easily and depend on headquarters for administration.

Due at the end of this month, the $3,495 router, called NETBuilder Remote Control, forwards traffic from a remote network — that has no other routers — to a central network via the Boundary Routing software. The $3,000 card, the LinkBuilder ECS Remote Control Module, provides central routing capabilities in 3Com's four- and 10-slot ECS hubs.

Both new products will route AppleTalk Phase 2 as well as TCP/IP, Novell Inc.'s IPX (Internetwork Packet Exchange) and Digital Equipment Corp.'s DECnet protocols.

3Com Corp. is at 5400 Bayfront Plaza, P.O. Box 58145, Santa Clara, Calif. 95052. Phone (408) 764-5000; fax (408) 764-7130. □

InterTalk router extends controls, protocol access

By Ian G. Jacobs

Mountain View, Calif. — International Transware Inc. late last month began shipping an update for its LocalTalk-only router with device hiding features and expanded access to TCP/IP and DECnet protocols.

Version 3.0 of the company's $599 InterTalk router lets administrators hide all the laser printers in specified zones and devices. For example, if a manager typed an asterisk into InterTalk's naming-configuration window, adding an asterisk to the name of any device would hide it.

If the network administrator desires, any InterTalk user on a network using TCP/IP or DECnet now can access these networks' services, regardless of zone. Version 2.0 allowed access to non-AppleTalk service only if the user and the InterTalk router were in the same zone as the multiprotocol gateway. Upgrades from Version 2.0 cost $35.

The company is offering a trade-in deal for users of Shiva Corp.'s NetBridge, Solana Electronics Inc.'s I Server, Focus Enhancement Inc.'s TurboBridge and Hayes Microcomputer Products Inc.'s InterBridge, among others. Users of these LocalTalk routers can switch to InterTalk 3.0 for $299.

International Transware Inc. is at 1503 Grant Road, Suite 155, Mountain View, Calif. 94040. Phone (415) 903-2300 or (800) 999-6387; fax (415) 903-9455. □

Switches

From Page 20

But Ungermann-Bass' DragonSwitch, as well as many other switching hubs, do not use circuit switching. Instead, they use an internal store-and-forward method similar to bridging that guarantees switched ports have access to bandwidth during packet transactions.

Due this summer, the DragonSwitch will implement concepts to be included in the company's future ATM products, including its new Virtual Network Architecture (VNA). VNA lets a manager move configured nodes into segmented groups by dragging them around from within Ungermann-Bass' NetDirector software.

"[DragonSwitch] is very different from what Kalpana does," said Nick Lippis, analyst at Strategic Networks Consulting Inc. of Rockland, Mass. "It tries to extend some of the benefits of virtual LANs, an ATM concept, to the Ethernet world." □

Gateways BRIEFS

IBM to beat Apple in shipping AS/400 emulator

Armonk, N.Y. — IBM Corp. this week will begin shipping the SNA•ps 5250 terminal-emulation application that Apple also will sell beginning in June.

The emulator will provide terminal access to IBM AS/400 minicomputers (see MacWEEK, Feb. 1). It will work on Macs with direct Synchronous Data-Link Control and token-ring connections or when connected to a second Mac running Apple's $1,495 SNA•ps Gateway. The SNA•ps 5250 emulator was developed under the Apple-IBM Enterprise Networking Initiative.

IBM is selling the application for $365; Apple's price will be $345. Quantity pricing will be available from both vendors.

IBM Corp. is at 1 Old Orchard Road, Armonk, N.Y. 10504-1783. Phone (915) 765-1900; fax (915) 765-4190.

Penril multiplexer fuses fax, data, voice onto one line

Gaithersburg, Md. — Penril DataComm Networks this week will ship its DVX multiplexer family that integrates fax, data, LAN and voice traffic over a single WAN connection.

Priced at $2,500, the self-contained DVX600 multiplexer integrates one compressed voice channel and one synchronous data channel over a full-duplex analog or digital wide-area network link.

The modular DVX6500 is priced at $2,500 for the chassis and six data ports. With the inclusion of fax or voice cards, which range from $1,200 to $2,500 each, it also can integrate up to eight voice or fax channels onto one full-duplex WAN link.

Penril DataComm Networks is at 1300 Quince Orchard Blvd., Gaithersburg, Md. 20878. Phone (301) 921-8600; fax (301) 921-8376.

High Tide dials up voice mail on Macs

Berkeley, Calif. — High Tide Software this week is releasing automatic voice messaging software that it said puts a full-featured voice-mail system on a Macintosh.

WaterMark Voice Mail 1.1, priced at $170, runs in the background to provide incoming and outgoing voice mail, remote access, and unattended return-call messaging features.

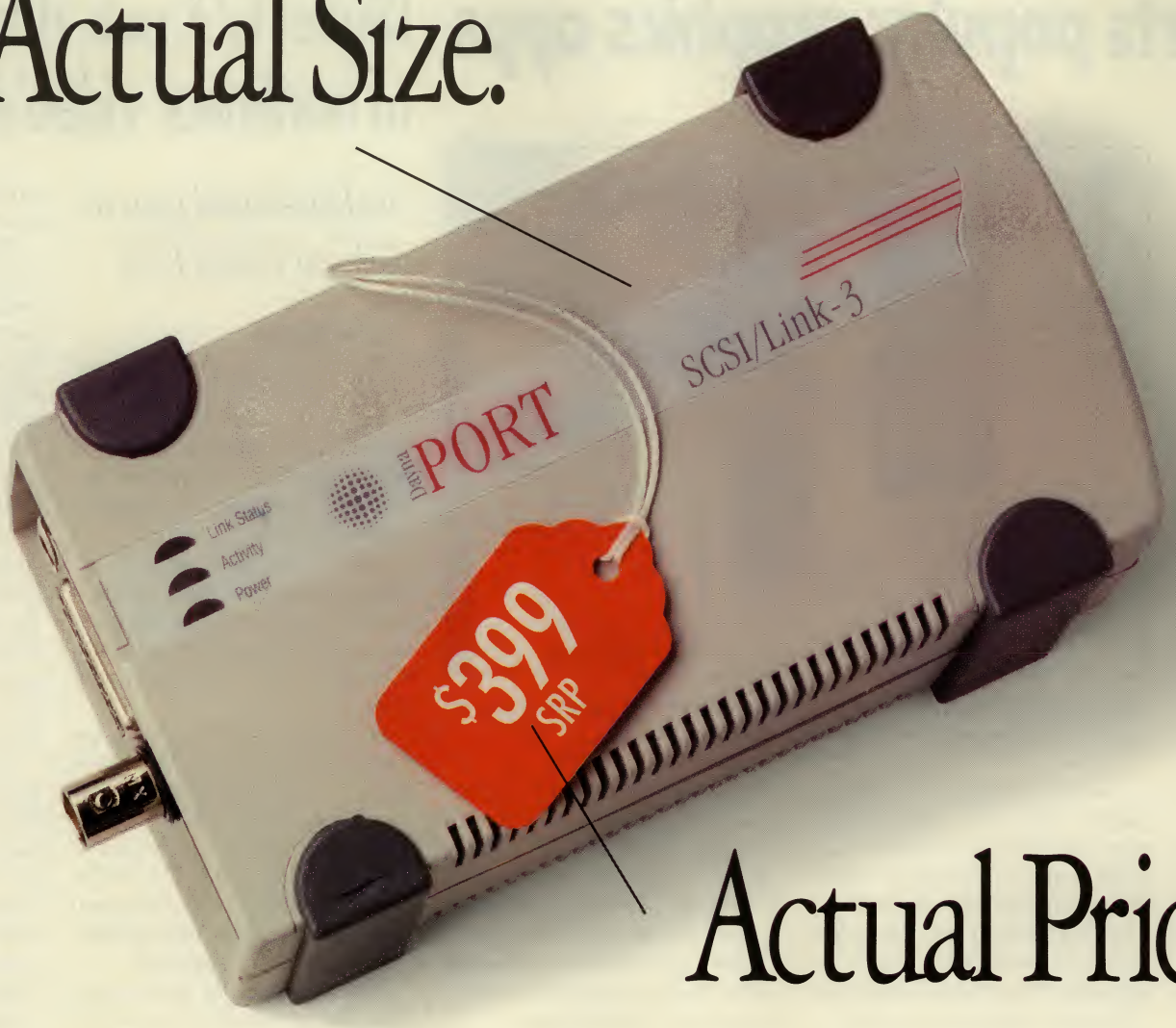
The software also is available to telecommunications hardware manufacturers and integrators that want to offer voice capabilities in their devices. It supports all modems using Rockwell International Corp.'s RC96V24 and RCV144ACL chip sets, as well as the chip set used in ZyXEL USA's U-1496 modem series.

High Tide Software is at 2112A McKinley Ave., Berkeley, Calif. 94703. Phone (510) 704-9927; fax (510) 704-9933.

"The smallest, lightest SCSI Ethernet interface available for the Mac."

– MacUser, February 1993

Actual Size.



Actual Price!*

The editors of *MacUser* magazine said it best. DaynaPORT SCSI/Link is the smallest, lightest SCSI Ethernet adapter on the market today.

Macintosh SCSI Ethernet Adapter Comparison	DaynaPORT SCSI/Link	Asanté EN/SC	Focus EtherLAN SC
Dimensions	6"x3"x1.75"	8"x4"x1.5"	7.5"x5.5"x1.5"
Weight	13 oz.	24 oz.	25 oz.
Pass through SCSI	Yes	Yes	No
SCSI termination switch	Yes	No	No
3-in-1 models available	Yes	Yes	No
Autosensing Ethernet ports	Yes	No	No
Onboard SCSI controller	Yes	No	Yes
100% Apple SCSI compatible†	Yes	No	No
SCSI cable included	Yes	Yes	No
Warranty	Lifetime	5 years	5 years

†Only SCSI/Link fully implements the IEEE SCSI specifications without modifying the Apple SCSI Manager.

But don't just try us for our size. Compare us feature for feature with our competition and you'll see that we've packed a whole lot of value into a very small product. SCSI/Link includes two SCSI ports and a handy termination switch, so it's easy to connect anywhere in your SCSI chain. And unlike our competitors, we designed our product to be fully compatible with Apple's SCSI Manager, for maximum reliability and compatibility with all Mac models.

Add to that our reputation for quality engineering design and manufacturing, our superb technical support and our no-nonsense lifetime warranty, and you simply won't find a better, safer buy from anyone else in the Mac networking industry.

MacWEEK Macintosh Volume Buyers (MVBs) take note. You can try SCSI/Link FREE OF CHARGE for 30 days. Call us today at 1-800-44DAYNA and ask about our *MacWEEK* MVB evaluation program.

Dayna®

Macintosh Networking Specialists

yes It runs with NetWare

*Retail prices for SCSI/Link range from $399 to $499 depending on model. Actual prices (street prices) for all our products are typically about 25% to 30% less than retail. Check with your favorite reseller for current prices.

DaynaPORT SCSI/Link is a trademark of Dayna Communications, Inc. All other product names are the trademarks of their respective holders. © 1993 Dayna Communications, Inc., 50 South Main, 5th Floor, Salt Lake City, Utah 84144. (801) 531-0600 FAX: (801) 359-9135.

Canto imports popular graphics apps

Scanner software, database unveiled

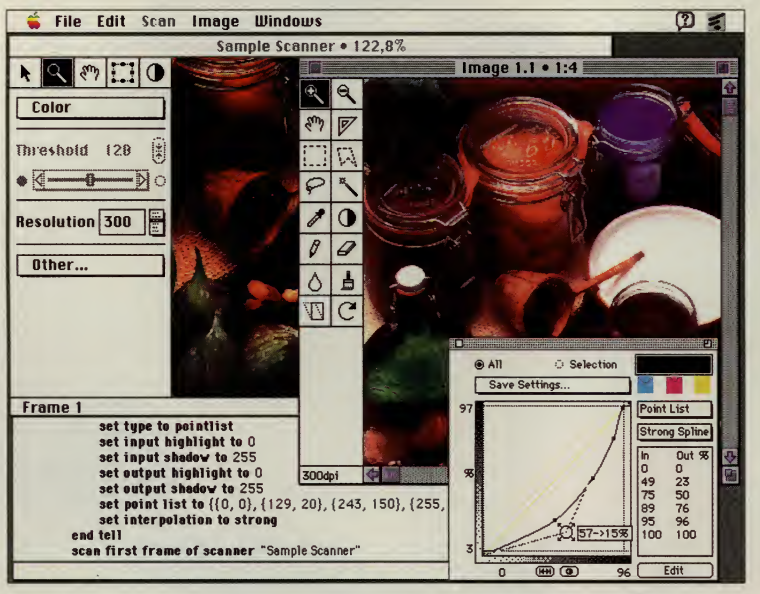
By Matthew Rothenberg

San Francisco — Berlin-based developer Canto Software GmbH this month will offer U.S. Macintosh users image-database and scan-enhancement programs that already are hot sellers in Europe.

Canto's U.S. subsidiary will offer English-language versions of:

- **Cumulus 1.1,** a client-server software package that catalogs and retrieves Mac graphics files across a network. The program saves a thumbnail preview and file information for each archived document and lets users customize search criteria. It can locate files even if they have been renamed, moved within a networked volume or stored on a removable device.

Cumulus can index an unlimited number of images. It supports PICT, PICT2, TIFF 6.0, PICS and QuickTime movie, Photoshop, Photo CD, Encapsulated PostScript, and Desktop Color Separation (DCS) formats. The program can open images in their native applications.



Version 2.0 of Canto Software's Cirrus scanning program will let users adjust gamma controls by entering color values or selecting points on a curve.

Cumulus will ship with software plug-ins that use custom Apple events to access the database and index graphics from within Adobe Photoshop, QuarkXPress and RagTime USA's RagTime. Canto said it also will provide a free plug-in for Aldus PageMaker when Version 5.0 of the page-layout program ships.

System administrators can use Cumulus' server application to create user-specific logs and back up or compress the database.

Claus Heitmann of Schmuck GmbH, an advertising agency in Hamburg, Germany, said he chose Cumulus over Aldus Fetch because of its speedy client-server performance and modest file sizes.

"I can have a Cumulus database on the server with several users accessing it simultaneously," he said. "It's so fast that we really don't run down our network performance."

According to Heitmann, Cumulus also creates more-compact image databases than Fetch; a Cumulus index of 1,000 to 1,500 scans occupies less than 1.5 Mbytes of disk space, he said.

Heitmann also said Cumulus' abili-

See Canto, Page 26

Shade II renders blend of 3-D tools

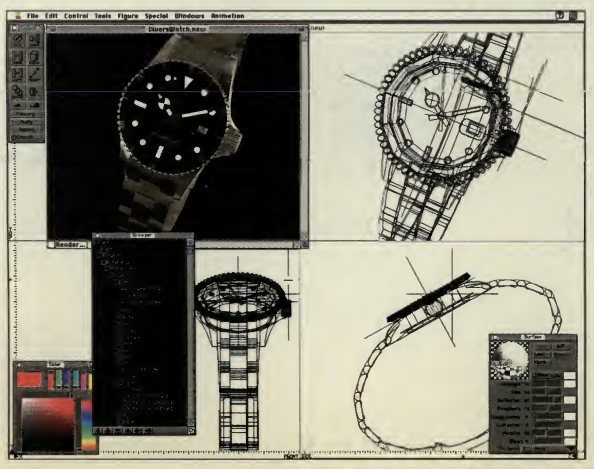
By Neil McManus

Palo Alto, Calif. — Users have a new spline-based 3-D modeler and renderer to choose from with the arrival of Shade II.

Available now for $2,000, Shade II is being distributed by its developer, SystemSoft America Inc. The program has been sold in Japan for several years. Features include:

- **Modeling.** Shade II has a variety of high-end modeling features, including Bezier curves, hierarchical linking, and lathed and compound surfaces. It offers bump, reflection and transparency mapping. Texture maps include marble, wood and metal. Users can enhance scenes with shading; fog; and ambient, spot and distant lights.
- **Rendering.** The program can

See Shade II, Page 26



SystemSoft America's Shade II offers hierarchical object linking and lets users view objects from a variety of angles.

Digital F/X puts Hitchcock on trail of nonlinear video-editing users

NuBus-based system links to Video F/X

By Neil McManus

Mountain View, Calif. — Digital F/X Inc. next month will introduce a nonlinear video-editing system that lets users prepare edit-decision lists on the Mac and automatically assemble final tapes on high-end video equipment.

Called Hitchcock, the $7,995 package is based on the company's Video F/X and Soft F/X editing systems. It will include a NuBus board, a breakout box and video-editing software.

Hitchcock's board uses C-Cube Microsystems Inc.'s CL550 chip to capture, display and output full-screen video at 30 frames per second. It will capture video to disk at 640 by 480 pixels for NTSC or 768 by 576 pixels for PAL (European) using JPEG (Joint Photographic Experts Group) compression.

The breakout box will feature input and output ports for S-video, composite video and eight-bit stereo audio. The system will use the Macintosh's serial port to control RS-422-based video decks and input timecode.

The Hitchcock editing program will let users split audio and video tracks; lock edit points for trimming; and apply customizable transitions, such as circular and diagonal wipes. In Hitchcock's Timeline view, users will be able to cut and paste in their choice of tracks and control audio levels. Editing changes will ripple by default.

The new Digital F/X system will come with a customized Adobe PostScript interpreter, which uses the Mac's CPU to render Type 1 fonts and Encapsulated PostScript graphics. It will let users anti-alias and composite PostScript fonts and graphics for video output.

Users will be able to make industrial-quality tapes through the system's encoder. Broadcast-quality tapes can be automatically assembled on the company's $9,995 Video F/X editing system using edit-decision lists (EDLs). Hitchcock also will export CMX, Grass Valley Group and Sony EDLs.

Digital F/X Inc. is at 755 Ravendale Drive, Mountain View, Calif. 94043. Phone (415) 961-2800; fax (415) 961-6990. □

Digital F/X's Hitchcock will include a control window that lets users cue tapes and step through source logs.

RasterOps tones up CorrectPrint performance

By Matthew Rothenberg

Santa Clara, Calif. — RasterOps Corp. has pumped up its CorrectPrint 300 continuous-tone dye-sublimation printer with faster firmware, more memory, cleaner color and new network options.

According to RasterOps, the $9,999 CorrectPrint 300i is up to six times faster than the original CorrectPrint 300, which it replaces.

Like its predecessor, the CorrectPrint 300i can output 300-dpi CMYK (cyan, magenta, yellow, black) or gray-scale images to letter, legal- or A4-size paper and transparencies. The new model is based on the same Sharp JX-56RU engine as the original printer, which is rated at 4 minutes per page, and both versions use a 33-MHz LSI 33000 RISC chip.

The CorrectPrint 300i derives much of its enhanced performance from firmware improvements, RasterOps said. The ROMs were revised to improve functionality and correct a number of bugs. In addition, the company said, it updated the printer's proprietary PostScript Level 1 interpreter to streamline performance and added support for double-byte characters, such as kanji fonts.

The CorrectPrint 300i ships with 36 Mbytes of RAM, which can be upgraded to 48 Mbytes. The earlier model was available in an $8,999 base configuration that included no RAM and a 36-Mbyte configuration that cost $11,999.

In addition, the new version uses color look-up tables developed by Sequel Imaging Inc. of Londonderry, N.H., to provide better gray balancing and color

See CorrectPrint, Page 26

GOLIATH.

DAVID.

Introducing DigitalFilm™ from SuperMac. Now you can bring your ideas to life in full screen right at the desktop.

DigitalFilm combines video capture to disk at 30fps, editing, and stereo sound. All for under $6,000!

Now you can previsualize graphics, effects and rough cuts off-line and handle most non-broadcast work on-line.

DigitalFilm offers high-end features like S-VHS encoding, EDL, SMPTE time code, direct print-to-tape capability, and more.

Over $2,200 worth of software bundled free. With Adobe Premiere™ 2.0 and CoSA After Effects,™ DigitalFilm is everything you need to create dazzling productions and presentations on the Macintosh®.

For the nearest Authorized Reseller, call **800-334-3005**. Information via fax, call SuperFacts℠: 800-541-7680.

A lot of power in a little package!

SUPERMAC™
The SuperSource for Video

© 1993 SuperMac Technology, Inc. All rights reserved. SuperMac, SuperMac Technology, and DigitalFilm are trademarks and SuperFacts is a service mark of SuperMac Technology, Inc.
Macintosh is a registered trademark of Apple Computers, Inc. Adobe Premiere 2.0 is a trademark of Adobe Systems Incorporated. CoSA and After Effects are trademarks of The Company of Science & Art. All other brands or product names are the trademarks of their respective holders.

Pixar offers new Glimpse into 3-D

Updates Typestry to speed rendering

By Kirsten L. Parkinson

Richmond, Calif. — Users of Pixar's 3-D rendering programs next month will be able to look to Glimpse, the company's utility for editing surface textures. Pixar also has released a fast new version of Typestry, its 3-D type utility.

▸ **Glimpse.** The $150 Glimpse will let users import and edit Looks, which are images used as surfaces for objects and type in Pixar's Showplace modeler and Typestry.

Users will be able to adjust color, opacity, smoothness and type of reflected light, as well as control anti-aliasing of the Look parameters through scroll bars and pop-up menus.

Glimpse also will let users enhance a Look with environment information; for example, the surface of a rendered shape can be manipulated to reflect nearby objects.

As users make changes, the results will be reflected immediately in a preview window. Users will be able to control the shape of the previewed object and adjust the quality of the rendered preview.

▸ **Typestry 1.1.** Pixar last month shipped an upgrade to Typestry, its $299 3-D rendering program for TrueType and Type 1 fonts. The new version offers faster rendering and support for Glimpse.

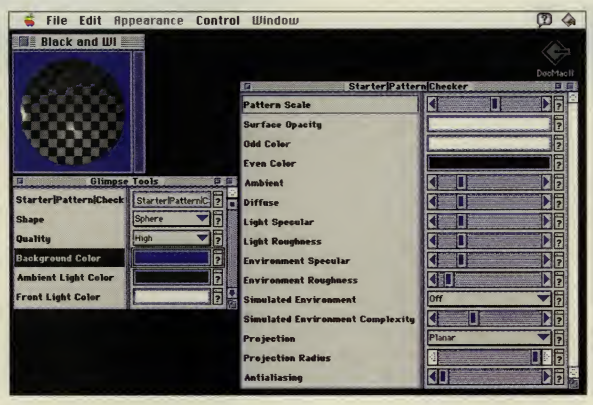
According to Pixar, Version 1.1 uses rendering algorithms based on NURBS (nonuniform rational B-splines) instead of polygons, which cuts rendering times and memory requirements.

The upgrade adds a new Looks format that lets users export surfaces to Glimpse for editing. A new browser includes a palette where users can save thumbnails of frequently used Looks.

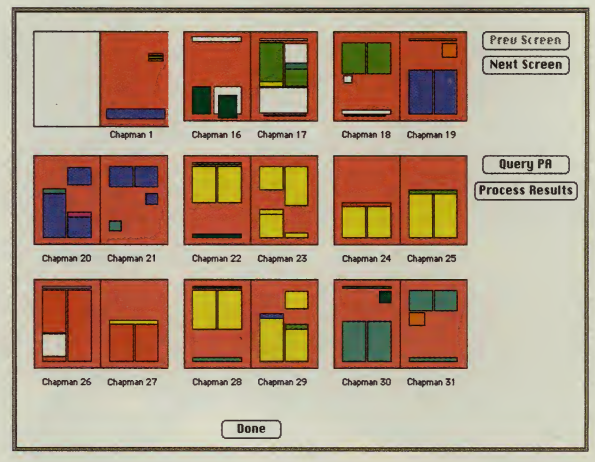
Other new features include support for composite characters, such as letters with accent marks, and the capability to paste resolution information into imported TIFF, PICT and Encapsulated PostScript files.

Upgrades are free.

Pixar is at 1001 W. Cutting Blvd., Richmond, Calif. 94804. Phone (510) 236-4000; fax (510) 236-0388. □



With Pixar's Glimpse, users can edit such attributes of a surface as color, opacity and reflections. Changes can be viewed in a preview window.



Publication Administrator View, an add-on component to Publication Administrator 2.0, shows thumbnail views of QuarkXPress pages and displays color codes that indicate the status of each element on the page.

Net database manages XPress docs

By Lisa Picarille

Chelmsford, Mass. — North Atlantic Publishing Systems Inc. last month released Version 2.0 of Publication Administrator, its client-server database XTension for managing layouts in QuarkXPress.

The upgrade is based on ACI US Inc.'s 4D Server relational-database engine, which supports up to 40 clients on a single server. In addition, PA 2.0 automatically reconciles any simultaneous modifications made by two users working on an XPress file.

The product is priced at $425 per client for 10 or fewer concurrent users and $300 per client for 11 to 40 users. A five-client concurrent license is required as a minimum purchase. Current PA users can upgrade for $150 regardless of the number of clients.

The company has broken out some features of PA 1.0 into optional modules. Public Administrator View (PAV), priced at $800, displays thumbnail sketches of multiple XPress documents and includes a color-coded status indicator for each element within the files.

The User Access module lets administrators restrict individual users' access to certain XPress commands. It costs $500 per user for one to 10 users and $375 per user for 11 to 40 users.

The company also said it plans to unveil, at next month's Seybold Seminars 93 Expo in Boston, WorkFlow Administrator, a client-server document-management system. It is due in the spring at an undetermined price.

North Atlantic Publishing Systems Inc. is at 9 Acton Road, Suite 13, Chelmsford, Mass. 01824. Phone (508) 250-8080; fax (508) 250-8179. □

Dycam software update links camera to desktop

By Lisa Picarille

Chatsworth, Calif. — A software upgrade due this month from Dycam Inc. will forge a more direct link between the company's Dycam Model 3 digital camera and the Mac desktop.

Like earlier versions, Version 3.3 of the Dycam software will be bundled with the Model 3, which captures and stores as many as 32 eight-bit gray-scale images at a resolution of 496 by 365 pixels. The application displays thumbnail previews of the images when the camera is connected to the Mac serial port; it imports the photos as TIFF or PICT files that users can edit, transfer and manipulate.

The upgrade will include controls that turn the camera's flash on or off and set its contrast to linear or gamma response. Previous versions could control these functions only by downloading code to the camera.

In addition, Version 3.3 will feature an Electronic Viewfinder tool that displays the image on which the camera is focused at a resolution of 100 by 100 pixels and updates the image every two to four seconds.

The Dycam Model 3 camera and Version 3.3 of the Dycam Macintosh application will be priced at $1,095. Current owners of the camera can upgrade for $100.

Dycam Inc. is at 9588 Topanga Canyon Blvd., Chatsworth, Calif. 91311. Phone (818) 998-8008; fax (818) 998-7951. □

Canto

From Page 24

ty to list the PostScript fonts used in an EPS file is very useful when his company sends out EPS logos for printing.

Cumulus costs $295 for a single-user package and $895 for a five-user package; additional clients cost $149 each or $599 for a five-pack. Canto will sell Cumulus for an introductory price of $195 through May 31. Cumulus requires System 7.

▸ **Cirrus 1.5,** priced at $295, is color scan-optimization software that works with most flatbed scanners to capture RGB (red, green, blue) or gray-scale images. It includes brightness, contrast and gamma controls; a software densitometer; selection and painting tools; and filters such as sharpen, soften, mosaic and posterize.

Users can modify a color prescan of the final image, which the program can save as a PICT, EPS, PostScript, compressed or uncompressed TIFF, or Paint file. It will ship with a Photoshop plug-in.

Canto this month will unveil Version 2.0 of Cirrus at CeBIT '93 in Hannover, Germany. The English-language version of the upgrade will ship in May.

Cirrus 2.0 will handle CMY (cyan, magenta, yellow) images and supports QuickTime, QuickTime-compressed PICT, DCS and TIFF 6.0. Canto said the upgrade will provide automatic color calibration via Apple's ColorSync system extension and color-matching algorithms, which will be bundled along with device profiles for about 60 flatbed scanners.

The upgrade will support AppleScript, and Canto said it will ship with scripts that provide automatic straightening, cropping and other features that parallel the capabilities of Light Source Inc.'s Ofoto. Users will be able to link Cirrus 2.0 to Cumulus and other programs via custom Apple events.

The company said Version 2.0 also will feature a smoother interface and enhanced controls, including a free-form gamma control that users can adjust by entering color values or selecting points on a curve.

Canto U.S.A. is at 800 Duboce Ave., San Francisco, Calif. 94117. Phone (415) 431-6871 or (800) 332-2686; fax (415) 861-6827. □

Shade II

From Page 24

render 32-bit images as large as 8,000 by 8,000 pixels. Rendering methods include ray tracing, z-buffer, scan line, and distribution ray tracing for soft shadow and depth-of-field effects. Shade II also offers anti-aliasing and alpha-channel support.

"The rendering quality of Shade is excellent, almost photographic," said Kevin Reilley, chief designer at Oriental Design & Research Co. Ltd. of Tokyo. Reilley said he uses Shade to make presentations to clients of electrical motor designs.

▸ **Acceleration.** Rendering can be accelerated through the program's own distributed rendering system or through the RISC-based NuSprint accelerator board from YARC Systems Corp. of Newbury Park, Calif. SystemSoft offers a $4,000 bundle that includes Shade II and the NuSprint board packed with 16 Mbytes of RAM. NuSprint ordinarily retails for $3,995 in that configuration.

▸ **Animation.** Shade II also offers keyframe, hierarchical and fly-through animation with adjustable lights and cameras. The program imports DXF (Drawing Interchange File) graphics and exports to RIB (RenderMan Interface Bytestream) and PICS files.

SystemSoft America Inc. is at 300 Hamilton Ave., Palo Alto, Calif. 94301. Phone (415) 853-6400; fax (415) 853-6406. □

CorrectPrint

From Page 24

accuracy, RasterOps said.

The CorrectPrint 300i, which switches automatically among LocalTalk, Ethernet and RS-232C interfaces, eliminates AppleTalk timing bugs in the original model and adds TCP/IP support. The SCSI port now is compatible with a wider range of third-party hard drives.

Through the end of the month, the company is offering owners of the original CorrectPrint 300 a free upgrade that includes a user-installable PDL ROM, new software utilities and revised documentation.

RasterOps Corp. is at 2500 Walsh Ave., Santa Clara, Calif. 95051. Phone (408) 562-4200; fax (408) 562-4066. □

ANNOUNCING A NOTABLE IMPROVEMENT IN MACINTOSH SOUND.

Pro AudioSpectrum 16 Mac (cables included)

Plug in the power of 16-bit, CD quality stereo sound.

Introducing a revolutionary new sound system designed to deliver the powerful audio performance you need. And change the way you listen to your Mac—the Pro AudioSpectrum 16™ Mac from Media Vision.

More than just affordable, it's the ultimate sound upgrade. Giving you everything you need for state-of-the-art digital audio. Like an add-in card and patch panel, four channel input mixer, MIDI, headphones and much more. Making it perfect for multimedia presentations or enjoying the hottest new games. With 16-bit, 44.1 kHz stereo sound so clear you have to hear it to believe it.

So if you're ready to create some notable improvements in sound on your Mac, call Media Vision today. We've got Macintosh® sound that's years ahead.

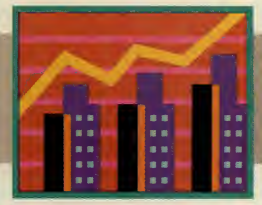
QUALITY COMMITMENT 100% SATISFACTION GUARANTEED

MEDIA VISION

Call 1-800-845-5870 for a dealer near you. ©1993, Media Vision, Inc. 3185 Laurelview Court, Fremont, CA 94538. 510-770-8600. FAX: 510-770-9592.
Pro AudioSpectrum 16 Mac is a trademark of Media Vision, Inc. All other trademarks and registered trademarks are of their respective holders.

BUSINESS WATCH

- Industry news
- Market trends



SuperMac acquires E-Machines line

Technology offshoot to focus on R&D

By Neil McManus

Sunnyvale, Calif. — SuperMac Technology Inc. last week acquired the licensing, brand names and distribution rights for the entire product line of competitor E-Machines Inc. Terms of the deal were not disclosed.

E-Machines, based in Beaverton, Ore., last week laid off 24 employees and created a 22-member transition team of corporate and manufacturing employees to "phase over" operations to SuperMac, an E-Machines spokeswoman said.

In addition, a new company, called E-M Technology Inc., will focus on development of Mac products. E-Machines President Steve Vollum will head the 11-person company in Portland, Ore.

SuperMac, E-Machines do business

What SuperMac gets

- Manufacturing, marketing and distribution rights to all current E-Machines products.
- Rights to forthcoming E-Machines peripherals such as PowerLink Presentor and PowerLink DeskNet for the Macintosh Duo System.
- Additional market share in the Mac color-publishing and digital-video markets.

What happens to E-Machines

- Will change name to E-M Technology Inc., an 11-person company focusing on product development for SuperMac and other vendors.
- Executive Remarketing subsidiary will continue mail-order sales of Mac computer systems and peripherals.

The spokeswoman said SuperMac is interviewing E-Machines employees. Executive Remarketing, a 41-person mail-order company that was a subsidiary of E-Machines, will be transferred to E-M Technology.

SuperMac will market and distribute all existing E-Machines products under their current brand names. E-Machines' product line includes more than a dozen displays, 24-bit-color graphics cards and Mac Duo peripherals.

SuperMac also is taking over the warranty and service of all E-Machines products, he said.

E-Machines and SuperMac last year accounted for 52 percent of unit sales of the Mac 24-bit display market, according to International Data Corp. of Framingham, Mass.

SuperMac, based here, had 40 percent of the market and E-Machines garnered 12 percent, said Steve Blank, SuperMac vice president of marketing. "We expanded our market share by 12 percent just by showing up to work on Monday," he said.

See SuperMac, Page 30

Clinton rolls out info superhighway

By Mitch Ratcliffe

San Jose, Calif. — President Clinton last week laid out an ambitious technology policy that promises to bring information to the masses and profits to the computer industry.

The president proposed $17 billion in technology spending over the next four years — a relatively small amount when compared with other items in the federal budget but far more than previous spending on research and development, government-private sector partnerships and information infrastructure.

Two elements in the program — investments in a nationwide high-speed network backbone and regional technology extension centers — could incite computer users to buy into high-bandwidth networking and more-powerful computers, industry observers said.

"For the past 12 years, technology policy was a dirty word in Washington, and before that it was a dirty word in Silicon Valley," said Paul Saffo, a research fellow at the Palo Alto, Calif.-based Institute for the Future. But now these two worlds are coming together because Clinton has promised to help computer companies create markets, Saffo said.

The president's proposed network expenditures will encourage the extension of low-cost Internet connectivity to middle schools, hospitals and, consequently, businesses located near these institutions that can tap into new commercial Internet exchanges. However, the specifics of the proposal call for private investment in the information highway.

The Clinton administration said it expects network connectivity will encourage the development of new applications and an emerging class of information workers.

Apple CEO John Sculley, who in recent weeks said his company will become an information provider with its own network as well as a systems manufacturer, last week said he supports Clinton's data highway initiative.

"The missing piece of the data highway is the guard rails in the

See Clinton, Page 30

Tax plan to help small businesses

By Jon Swartz

San Francisco — In addition to his technology initiative, President Clinton's sweeping tax proposals should have an impact among Silicon Valley companies

The tax package is likely to reward small businesses and start-ups and exact sacrifice from big ones.

Start-ups with plans to go public could see immediate benefits from the president's proposals for a permanent tax credit on R&D, increased spending on civilian technology research and a new 7 percent investment tax credit.

They also could gain from Clinton's proposal to cut from 28 percent to 14 percent the tax on capital gains earned from investments in stock held at least five years. The

See Taxes, Page 30

Symantec executives could face indictments in trade-secrets suit

By Jon Swartz

Santa Cruz, Calif. — A grand jury could indict Symantec Corp. executives as early as this week for allegedly stealing trade secrets from Borland International Inc.

The Santa Cruz County (Calif.) grand jury may decide to indict Symantec CEO Gordon Eubanks and former Borland executive Eugene Wang following a five-month investigation, Symantec criminal attorney James McManis said last week.

Borland employees have been subpoenaed to appear before the grand jury is convened, according to a Borland official.

The Santa Cruz County district attorney's office has been conducting a criminal investigation of the Symantec executives since Sept. 1, 1992, the day Wang joined Symantec. Two days later, Borland filed a civil lawsuit against Symantec and its executives.

The complaints claim Wang stole trade secrets from Borland, including long-term business plans and product information (see MacWEEK, Sept. 21, 1992).

Symantec, a fierce competitor of Borland's in the database and computer-language markets, has flatly denied the charges.

While trade-secret disputes are not uncommon in Silicon Valley, they are generally handled in civil court, said Rick Larson, an intellectual-property attorney in College Station, Texas.

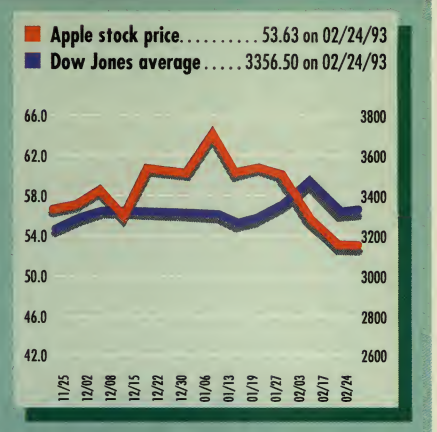
Criminal indictments would send a strong message to high-tech workers, who routinely jump from one company to a competitor, according to industry and legal observers.

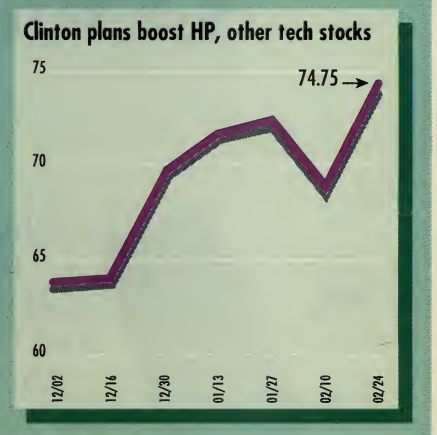
Jon Hopkins, Santa Cruz County assistant deputy attorney, declined to comment on the investigation. □

StockWatch

	02.24.93 CLOSE	WEEKLY % CHANGE
Apple	53.63	-0.46
SOFTWARE DEVELOPERS		
Adobe	42.50	3.03
Aldus	17.88	8.33
Caere	17.50	-4.11
CE Software	3.75	20.00
Microsoft	83.88	4.52
Novell	26.63	0.00
Symantec	10.88	-7.45
PERIPHERALS VENDORS		
CMS	2.63	-8.70
HP	74.75	3.46
Mass Micro	0.47	0.00
QMS	14.75	1.72
Radius	5.13	2.50
RasterOps	7.50	7.14
Sigma	6.00	-12.73
SuperMac	16.75	-2.90
STORAGE		
Conner	19.25	-2.53
Maxtor	7.50	-16.67
Quantum	15.88	0.79
Seagate	16.63	-6.34
SyQuest	10.13	-32.50
INDUSTRY INDICATORS		
DEC	46.88	9.97
IBM	51.88	2.72
Motorola	58.50	7.59
Sun	34.63	4.14
Dow Jones	3356.50	1.34

Compiled by Nordby International Inc.





High-tech investors were generally pleased with President Clinton's $17 billion, four-year technology initiative.

Last week computer stocks were up modestly as the president outlined a set of policy directives, spending proposals and new ventures (see stories at left).

Hewlett-Packard Co.'s stock, for example, increased 3.5 percent to close at $74.75 per share.

The Smartest Way to Migrate From LocalTalk to Ethernet

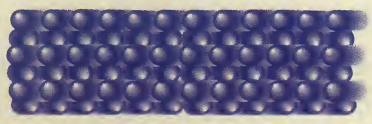
Question: **What is TribeStar?**

An AppleTalk network hub with eight LocalTalk ports and one Ethernet port. TribeStar™ can handle eight simultaneous full-speed connections between LocalTalk and Ethernet. A router or hub-router combination can only handle one at a time.

Question: **What makes it so smart for Ethernet migration?**

Because in one box you get both packet-switched LocalTalk and high-speed Ethernet connectivity. You can mix LocalTalk and Ethernet in the most sensible way—and get eight times the throughput of a router. How does it work? With a router, the packet stream between LocalTalk and Ethernet looks like this:

With five microprocessors and an 80 Mbps backplane, TribeStar builds a roadway between LocalTalk and Ethernet that is eight times wider:

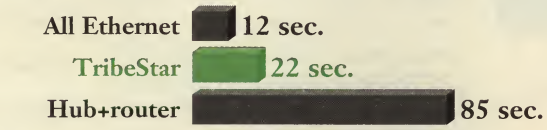


TribeStar can process eight times more packets per second than a router.

TribeStar
LOCALTALK ETHERNET

Question: **How much will TribeStar speed up my LocalTalk?**

In a LocalTalk network of 15 to 30 users, it's not unusual to have eight people concurrently accessing Ethernet-based network services. In this case, TribeStar is about four times faster than a hub-router combination. (See graph.)



Time to complete eight simultaneous downloads of a 200 KB file from a Macintosh IIsi running AppleShare.

Question: **Impressive. Where should I use TribeStar?**

Use TribeStar whenever you want to integrate LocalTalk and Ethernet. And use it to give LocalTalk users fast access to network services. TribeStar requires virtually no configuration and comes with SwitchMonitor management software. The simplest, most powerful solution, it's a great way to get started with Ethernet.

Question: **How much is it?**

TribeStar lists for $1795. Compare the alternatives:

Approximate cost for a 25-node network. All prices are list.

Question: **Wow. Why should I ever buy a router or a StarController?**

Hmmm. Can't think of any reasons.

Question: **OK, must be about time for the phone number.**

510-547-7800

Call us. We're happy to discuss your network situation. We'll also send further information, including a disk that demonstrates how TribeStar works.

Tribe COMPUTER WORKS

©1993 Tribe Computer Works, Inc., 1195 Park Avenue, Emeryville, CA 94608. FAX: 510-547-3928. AppleLink: TRIBE. All trademarks or registered trademarks are the property of their respective owners.

Apple to participate in EPA energy program

By Jon Swartz

Cupertino, Calif. — Apple has announced it will join an energy-conservation program created by the U.S. Environmental Protection Agency.

The Energy Star program, aimed at getting hardware vendors to build energy-efficient printers, already boasts Compaq Computer Corp., IBM Corp. and Hewlett-Packard Co. among its members.

The program is an extension of Energy Star Computers, a joint effort between the federal government and industry to encourage the manufacturing of energy-saving office equipment and, thereby, reduce air pollution caused by electricity.

Starting in June, printers that meet EPA guidelines will be sold with an Energy Star logo. Apple this year will introduce a variety of hardware products, including printers, that display the Energy Star, a company spokeswoman said.

The Color Classic introduced last month turns off its monitor after a period of inactivity to save energy. □

Clinton

From Page 28

form of privacy protections that will make it safe," said Marc Rotenberg, director of the Washington office of Computer Professionals for Social Responsibility.

Without a guarantee of privacy, he said, the Internet will not be a useful environment for doing business.

Rotenberg suggested the president create an independent oversight committee and encourage the development of innovative security and privacy technologies at the National Institute of Standards and Technology, which will receive a huge funding boost under the Clinton program.

The technology extension program, which is modeled after the Agricultural Extension Service that brought more-efficient farming techniques to family farms during the 1940s and 1950s, will help make U.S. businesses more competitive, the administration said.

Extension centers would provide an environment for training but also for industry to evangelize and sell its latest products to U.S. business.

"We are creating an underclass of people who don't have the skill set to work in a high-technology environment," said James Kouzes, president of the Tom Peters Group, a management consultancy in Palo Alto.

"Anything the government can do, including the technology extension service, is an extraordinary step in the right direction," he said. □

SuperMac

From Page 28

Blank said the product lines of the two companies are complementary; SuperMac's offerings are aimed at publishing and video professionals, and E-Machines' products are focused on business users.

"We want to be like Sears and offer 'Good, Better, Best,' " Blank said. "If a business user doesn't need a super-accelerated SuperMac Thunder card, we'll say, 'Try this E-Machines board,' " Blank said.

The E-Machines logo will remain on the company's products to keep their brand-name recognition and to keep SuperMac's label associated with higher-end products, Blank said. □

Jon Swartz contributed to this story.

Taxes

From Page 28

proposal is limited to companies with capital of less than $25 million.

The lower tax rate may persuade venture capitalists to invest in a number of companies they otherwise would have rejected.

"This makes it easier for small companies to attract quality employees because their (stock) compensation would come from the capital gains side rather than from a salary, which is taxed as ordinary income," said Kevin Fong, general partner at Mayfield Fund, a venture capital company in Palo Alto, Calif.

But the incentives won't benefit large companies as much. The investment tax credit, for example, will apply only to companies with annual sales of less than $5 million. For larger companies, Clinton's proposed credits are for only 1993 and 1994 and then just for marginal increases in investment from prior years.

Others worry that benefits from the president's incentives could be wiped out by a proposed increase in the top corporate tax rate to 36 percent from 34 percent for companies with more than $10 million in sales.

Clinton's plans also include a controversial proposal, expected to raise $5.5 billion over five years, that would increase taxes on royalty income generated by licensing U.S. technologies abroad.

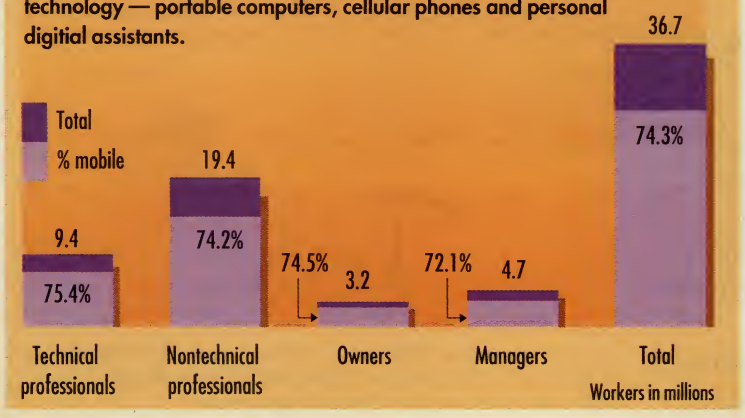
On the other hand, a cross section of Silicon Valley companies is eager to share in Clinton's plan to spend $17 billion on high-tech infrastructure by 1998.

Among the proposed spending increases: about $1.3 billion for work on converting defense industries to civilian purposes; $2.3 billion for basic research conducted by the National Science Foundation; about $1.5 billion for interagency research programs on fields that include "information superhighways," advanced manufacturing and biotechnology; and an additional $1 billion for computer networking funding over the next four years.

In related news, Apple last week said John Rollwagen, an Apple board member since 1988, has resigned to accept a nomination as deputy secretary of Commerce. The former Cray Research CEO will specialize in high-tech policy, according to Apple. □

MacWEEK index
GOIN' MOBILE

Nearly three-fourths of the nation's 36.7 million professionals spend 20 percent or more of their time away from their desk or immediate work area. These mobile professionals are potiential users of mobile information technology — portable computers, cellular phones and personal digitial assistants.



Source: BIS Strategic Decisions Inc.

Business BRIEFS

Taligent offers peek behind veil of secrecy

Cupertino, Calif. — After a year of relative silence, Taligent Inc. last week announced the formation of three primary business units.

The Native System Group, headed by Beatriz Infante, is dedicated to integrating and delivering the Taligent operating system on Motorola Inc., Intel Corp. and PowerPC machines. The Development Environment Group, which has yet to name a leader, is responsible for encouraging software vendors to deliver tools such as compilers, browsers and debuggers. The Complementary Products Group, led by Doug Brent, is charged with remarketing technologies, including class libraries.

Despite the openness about its new organization, Taligent officials declined to provide further details on Pink, its forthcoming object-oriented operating system.

CE Software sales up, profits down

West Des Moines, Iowa — Despite a slight increase in sales, CE Software Holdings Inc.'s profits dropped by one-third for its first quarter ended Dec. 31, 1992.

Behind strong sales of QuicKeys 2.1.3, introduced in November, the electronic-mail and utility vendor's sales rose 4 percent to $2.6 million, compared with $2.5 million for the same quarter last year.

However, the company's profits sank 34 percent to $145,165, compared with $194,470 last year, because of increased research and development costs associated with QuicKeys 2.1.3 and the forthcoming QuickMail 2.6.

CE Treasurer John Kirk said the company will continue to pursue acquisitions that enhance its product line. He said CE Software has cash and investments of about $5 million with no long-term debt.

No damages awarded in Monotype-ITC trial

Seattle — The second part of the legal battle between International Typeface Corp. and Monotype Typography Inc. last month ended in a draw when a federal judge here threw out the damage claims of both companies.

U.S. District Judge William L. Dwyer ruled that neither company was liable for damages and dismissed the claims of both companies without submitting them to a jury.

A jury ruled in January that Monotype did not infringe its contract with ITC when it released 10 fonts that compete with ITC typefaces (see MacWEEK, Feb. 1).

ITC said it will appeal the ruling. The New York-based company announced that as of May, Monotype no longer will be licensed to manufacture ITC fonts, although Monotype still will be able to distribute ITC fonts manufactured by other ITC subscribers.

Every Mac Deserves Big Color

When it comes to big-screen color, your LC, SE/30 and Performa™ 400 now have the same potential as a Mac® II or Performa 600. The new Lapis™ ProColorServer™ display cards bring full color capability to every color-capable Mac. That means really big screens – up to two full pages. And as many colors as you want – 16,777,216 to be exact.

Now you can add 24-bit color to your LC. Expand your SE/30 with a 21-inch color display. Bring out the colorful best in your Mac II or Performa 600.

Lapis has a full range of display products that improve the look and productivity of all types of Macintosh® computers, from the Plus to the Quadra™.With the highest reliability and best prices in the industry.

Call **1-800-43-LAPIS** today to find out more about ProColorServer display cards.
Your Mac deserves it.

Lapis Technologies, Inc.
1100 Marina Village Parkway
Alameda, California 94501
(510) 748-1600 • FAX (510) 748-1645

	8-bit (256 colors)	16-bit (32,768 colors)	24-bit (16,777,216 colors)
LC & LC II	✦	✦	✦
SE/30	✦	✦	✦
Performa 400	✦	✦	✦
Performa 600	✦	✦	✦
Mac II/Quadra	✦	✦	✦

ProColorServer display cards are available in 8-bit, 8•16-bit, and 8•16•24-bit versions, and support monitors from 13" to 21", with resolutions ranging from 640 x 480 to 1152 x 872. Lapis also offers a full line of DisplayServer™ and PowerBase™ monochrome display adapters for all Mac systems ranging from the Plus to the Quadra.

Trademark/Owner: Macintosh, Mac, Performa, Quadra/Apple Computer, Inc.; ProColorServer, DisplayServer, PowerBase, Lapis/Lapis Technologies, Inc.

MacWEEK

Publisher David J. Ezequelle
Editor Henry Norr

EDITORIAL
Executive Editor/Reviews Rick LePage
Executive Editor/Features Anita Malnig
Managing Editor Brenda Benner

Senior News Editors Andrew Gore, Carolyn Said
Senior Editor Erik Holsinger (ProductWatch)
Technical Editor Stephen Howard
Editors at Large Dale Coleman, Mitch Ratcliffe
Associate News Editors Neil McManus (GA), Leonard Heymann (Gateways), Jon Swartz (BusinessWatch)
Senior Writers Lisa Picarille, Matthew Rothenberg
Technical Analyst Raines Cohen
Associate Editors Kurt Carlson, Sean Wagstaff (Reviews)
Staff Writers Kirsten Parkinson, April Streeter, Nathalie Welch
Assistant Editor Jennifer Ambrulevich
Assistant Managing Editor Anne Matera
Senior Copy Editor Mariann Hansen
Copy Editors Allison de Laveaga, Ken Torisky, Kathy White
Assistant to the Editor Pamela J. McIver
Editorial Intern Ian G. Jacobs
Contributing Editors Clay Andres, Don Crabb, Ric Ford, Bruce Fraser, Connie Guglielmo, Steve Hannaford, Steve Michel, Jonathan Oski, David Ramsey, Steve Rosenthal

ART AND PRODUCTION
Managing Director/Production and Technology Barri Klingaman
Art Director Eleanor Leishman
Assistant Art Director Margaret Lee
Infographic Specialist Nevin Berger
Graphic Designer John Farnsworth II
Production Manager Steve Spingola
Pre-press Manager Tim Manousos
Assistant Pre-press Manager Tamara Gargus
Pre-press Technician Dave Janusko
Assistant Production Manager Christina Vyhnalek
Ad Production Coordinator Michele Kellogg

ADMINISTRATION
Business Manager Rosemarie Carbone
Marketing Director Vickie Welch
Marketing Coordinator Christine Forney
Circulation Manager Linda Emanuele
Sr. Circulation Coordinator Me'Shel A. Riedel
Systems Administrator Robert Hess
Research Associate Sean Pfister
Assistant to Publisher Grace Jue
Sales Assistant Michele Imfeld
Administrative Assistant Heather Kudzia
Billing & Credit Coordinator Elizabeth Hurst
Office Services Coordinator Quentin Thompson

ZIFF-DAVIS MAGAZINE NETWORK
Group Vice President J. Samuel Huey
Managing Director Joseph Gillespie

ZIFF-DAVIS PUBLISHING COMPANY
Chairman and CEO Eric Hippeau; **President** J. Scott Briggs; **Executive Vice President** Ronni Sonnenberg; **Executive Vice President** Mike Edelhart; **Executive Vice President, International** J.B. Holston III; **Group Vice President** J. Samuel Huey; **Group Vice President, Direct Publications** Jim Stafford; **Senior Vice President, Marketing** Paul H. Chook; **Senior Vice President** Rachel Greenfield; **Vice President & General Manager** Louis B. Dotti Jr.; **Vice President, Operations** Baird Davis; **Vice President, Controller** Howard Sckolnik; **Vice President, Creative Services** Herbert Stern; **Vice President, Research** Rolf M. Wulfsberg; **Vice President, Circulation Services** James F. Ramaley; **Vice President, Marketing Services** Ann Pollak Adelman; **Vice President, Production** Roger Herrmann; **Vice President, Europe** Frank Kelcz; **Vice President, Technology** William B. Machrone; **Vice President, Central Advertising Sales** Paul Stafford; **Vice President, ZD Magazine Networks** Marian O. White; **Vice President, Human Resources** Rayna Brown; **Vice President** Claude P. Sheer; **Executive Director/Information Systems** John Helliwell; **National Managing Director/Magazine Networks** Joseph Gillespie; **Licensing Director** Jean Lamensdorf; **Director of Planning** Gary A. Gustafson; **Production Director** Walter J. Terlecki; **Director of Sales Training** Dan Leonetti; **Director of Corporate Marketing** Susan Delman; **Editorial Director** Lewis D'Vorkin; **Co-Directors ZD Benchmark Operation** Bill Catchings and Mark L. Van Name; **Director, Direct Marketing Programs** Alicia Marie Ivans; **Director of Public Relations** Gregory M. Jarboe; **Business Manager/Publishing Operations** Tom McGrade

ZIFF COMMUNICATIONS COMPANY
Chairman William B. Ziff Jr.; **President** Philip B. Korsant; **Executive Vice President** Philip Sine; **Executive Vice President** Steven C. Feinman; **Vice President & Special Assistant to the Chairman** Bruce Barnes; **Vice President, General Counsel and Secretary** J. Malcolm Morris; **Vice President, Controller and Treasurer** Patrick J. Burke Jr.; **Vice President** Seth Alpert; **Vice President, Business Manager** T.L. Thompson; **Vice President, Chief Information Officer** Thor Olson; **Vice President, Electronic Editorial Director** Michael Kolowich

Editorial and advertising offices: 301 Howard St., 15th Floor, San Francisco, Calif. 94105. Phone (415) 243-3500; fax (415) 243-3651.

BPA

EDITORIAL

Managing chaos

Apple has been something of a study in managing amid chaos. Over many years it has traversed a minefield of product strategies *du jour* and has emerged a stronger, if no less tumultuous, company.

For managers, this means staying one step ahead. Although it usually isn't a listed job skill, a little bit of clairvoyance is a must for Mac managers. Knowing where Apple is going can require as much voodoo as reading the trades. Yet, if you're going to make sure your company's procurement strategy meshes with Apple's directions, you've got to do the groundwork.

Recently we've seen Apple's predisposition for chaos gain momentum. For example, is Taligent Inc.'s operating system going to be a general-purpose OS or a platform for custom development? Will Newton be a consumer product or a custom-forms product? PowerPC is the future, but that doesn't mean you shouldn't buy a Centris or Quadra today — or does it?

And then there is the deluge of System 7 extensions coming over the next few months. AOCE (Apple Open Collaboration Environment), QuickDraw GX, AppleScript, and Cyclone's built-in telephony and voice-control software will stretch managers' ability to stay ahead to the breaking point.

We're not saying that Apple shouldn't embrace chaos. The company must pump up its speed of innovation to survive in this fast-paced industry.

However, we feel the company has done a poor job of keeping corporate users apprised of its strategies and directions. These people must know far in advance what the deal is, if they are to deal with new products effectively.

In this week's issue is a Special Report that charts Apple's divisions and product initiatives (see Page 34). This is a first step toward giving managers the information they need to plan for the future.

We hope this kind of disclosure is a trend and that Apple will make greater efforts to let Mac managers know what they must prepare for, well in advance of the box arriving on their doorsteps. □

Commentary

General Magic: More than just smoke and mirrors

JEAN-LOUIS GASSÉE

In the old days when new products appeared, users were left to figure out the meaning for themselves. In time, a new concept — even a new paradigm — might emerge.

No one cleverly conceived, designed and then launched the desktop publishing revolution. It came at the convergence point of several products independently developed by different companies.

As with most great endeavors, major advancements in the computer industry have occurred mostly by accident.

Desperately seeking significance. These days, new product announcements come neatly wrapped in conceptual paper, tied with bright, new paradigm bows. Stating what the product does isn't enough anymore — you have to explain its importance on a cosmic scale. A new product must represent the second coming of desktop publishing (multimedia) or the rise of trillion-dollar businesses (personal digital assistants).

Such being the case, isn't it surprising the number of new products proclaimed to be the computer industry's equivalent of the resurrection? But clothing newborn technologies in such messianic accouterments makes it impossible for them to meet the expectations of their creators.

The need for cosmic significance and paradigm shifts is so strong that it tends to push the actual product into the background. Newton is an unfortunate example. The high-concept discussion of PDAs has left us with precious few facts about what Newton actually does.

Customers are left disoriented, like wise men in search of that special star in a night sky filled with supernovae. Yet no one seems able to stop.

Generally tragic. General Magic Inc.'s recent announcement seems to be one such case. After absorbing press accounts of General Magic, readers not only can't buy the product, they probably have a hard time figuring out what it is.

The General Magic show had enough interesting characters to generate copy. But it turned unusually catty. The Wall Street Journal article exceeded this columnist's standards for cheek and ambiguous multifaceted compliments, featuring praise for General Magic's exposition skills and an unusual quote from a highly placed executive at Apple pointing to the delays in the General Magic project. Nothing of that sort would be tolerated in his company. Of course not.

This is too bad. General Magic's work deserves better than premature evaluation, being cast as yet another vaporware product. One is at a loss, for instance, to explain why General Magic didn't reveal more details on Telescript.

For instance, take Nexis, a database of many English-language periodicals. Most of us are potential users of Nexis but most of us don't use it. General Magic could give users easy access to Nexis and the myriad of terrific, but forbidding, on-line services. If it happens, it will be a truly momentous change deserving all the messianic and paradigmatic adjectives.

If it wasn't that significant, how could we explain a briefly discussed fact: AT&T Co., as part of its grand strategy to be the mother of all multimedia network companies, wants exclusive rights to key parts of Telescript and apparently is willing to pay for it.

Of the many probes Apple has sent into various technology and business directions, General Magic has the potential to have the widest impact. Let's hope we'll soon have some product to judge for ourselves.

Like in the good old days. □

LETTERS

Cross-platform Omnis 7 overlooked in Special Report

I am disappointed with the minimal coverage given to Blyth Software Inc.'s Omnis 7 in the Special Report "Putting the cross-platform promise to the test" (MacWEEK, Feb. 8).

Omnis 7 is the only development tool that offers seamless cross-platform database development between the Mac and Windows, yet it was relegated to a single sentence. A great deal of space was devoted to the difficulties of cross-platform FileMaker Pro applications and to the "promise" of cross-platform FoxBASE.

Omnis products have been sharing data between the Mac and Windows since 1988. Omnis 3.3 for Mac and Omnis Quartz 2.0 for Windows could share data on a mixed network. They also were the first database products on either platform to support SQL. Omnis 5 became available on both platforms in 1989, and transported applications required only simple, automatic conversions.

Omnis 7 requires no conversion of application or data between platforms. Full support is given to publish and subscribe and Apple events on the Mac and Dynamic Data Exchange and Object Linking and Embedding (OLE) in Windows, any of which are programmable from either platform. Omnis 7 offers a greater set of event management tools than any database development environment on either platform. It even shares pictures across platforms, both on application screens and in the data.

My enthusiasm for Omnis 7 comes from more than 10 years of custom development and training in databases on many platforms. Although I continue to scrutinize all offerings, I cannot recommend any product over Omnis 7 for serious, and especially cross-platform, database development on personal computers.

David Swain, president
Polymath Business Systems, Alameda, Calif.

Apple exacts its own sacrifice from longtime ed dealers

Regarding the story "Apple retools education reseller channel" (MacWEEK, Nov. 23, 1992), perhaps your readers should know exactly what Apple is proposing for its education dealers network.

We have been an Apple education dealer for more than five years. Educators and administrators depend on us for their technology needs in the way of consultation and expertise. We have built an excellent working relationship with our clients.

In April 1991, Apple set up territories to eliminate cutthroat competition and the practice of compensation rebating to education customers. This was a good move. It drew all Apple Education Sales Consultants (AESCs) together as a "sales team" in a much less competitive environment. Dealers concentrated more on solutions than on competition.

We also have seen Apple cut our compensation for selling its product. We often have wondered why Apple cannot pay more than 9 percent to the dealers that actually sell its products to its largest market. Can any business survive on a 9 percent margin? Survival is extremely difficult since Apple also insists that its education dealers not sell competing computers.

Apple's proposed plan to assign single states or larger regions to a single third-party entity is absurd. Apple's education dealer network has made Apple the leader in this market. Installation, instruction, service and support are key ingredients of every Apple AESC. In the future, Apple will want schools to call toll-free to place orders, do installation themselves or hire it out, and call toll-free for support. Bile was tasted from coast to coast when the schools found out about this arrangement.

Apple just doesn't get it.

Name withheld by request

Lack of software idles user of FlexFAX fax modem

The story "Circuit plans DID for FlexFAX" (MacWEEK, Feb. 8) lacked some critical information.

Many FlexFAX owners bought their modems a few years ago for use with FaxGate for QuickMail from Solutions Inc., which required a version of Solutions' BackFax 1.5 software. But BackFax fell into an abyss around the time System 7.0 shipped. Circuit Research Corp., which manufactures the FlexFAX modem, has taken no steps to provide owners of its FlexFAX modem with fax software. This leaves me no software to make it work.

Bill Davies, Paperless Airplane, Sacramento, Calif.

We asked Circuit Research about this issue. Here is the company's reply:

"We regret this inconvenience. We, too, were victimized by the unfortunate sequence of events regarding the closure of Solutions Inc. We have sought a new arrangement with a third-party developer for single-user fax software.

"We will have a plan in place by the end of the month for supplying customers with a stable, reliable single-user software package with continued technical support. The package will be available for $99, with a 50 percent discount available to present FlexFAX/BackFax owners. Multichannel/multi-user network fax software has always been available for the FlexFAX modem, as well as for our new high-speed network fax modem."

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105. MCI 323-1203; Internet, letters@macweek.ziff.com; fax (415) 243-3650. Include your name, address and phone number. Letters should not exceed 300 words. We reserve the right to edit for clarity and length.

The Mac Manager

What a terrible thing to waste Mac CPU cycles

DON CRABB

You may already have all the Mac processing power you will ever need if you just had some way to access that power. Do you think I'm nuts? Let's run some numbers.

Suppose you have 500 Macs in your company. On average, each person actively uses the Mac about two and a half hours a day. Even if each Mac is being fully utilized during those two and a half hours, that leaves 21.5 hours each day when the CPU is doing absolutely nothing.

If you use a computing index pegged to 100 percent, with 100 percent as full CPU utilization and zero percent as no CPU utilization, each of our Macs has a dismal rating of less than 10.5 percent.

When you consider all 500 Macs, you've got a pile of unused CPU cycles. And as with unsold airline seats, once those cycles go unused, they are gone forever.

As a manager you wouldn't put up with that kind of performance from an employee, and Mac managers shouldn't have to put up with it from their Macs.

Use it or lose it. The time is at hand for us all to think about our Macs the way we used to think about our old time-shared mainframes and microcomputers: as time-critical computing resources.

Of course, we could address some of these losses by some creative resource management: moving staffers who use their machines the least to less-powerful Macs, while moving those who need the most power onto the hottest Macs.

But such scheduling machinations can help only a little, and they risk alienating staffers and making them less productive. Plus, this strategy doesn't take into account peak usage needs — such as those occasional times when even the basic word processing maven has to deal with a monster spreadsheet recalculation.

We need something more.

Basic distributed computing. We need what mainframes and minis have and what workstation users have discovered in the past two years — real distributed computing (DC).

Unfortunately, DC is deceptively simple to describe but a major pain to implement.

In our present context, a DC approach to our 500-Mac network would be software to monitor each Mac and use its CPU for other tasks when it is idle. So, instead of each Mac using only 10.5 percent of its daily CPU cycles, a DC environment would strive to come much closer to 100 percent by snatching and using idle cycles.

Neither Apple nor any third party provides fully distributed development tools to allow you to rewrite your own critical applications for DC.

System 7 just doesn't have the operational hooks (pre-emption, protected memory, multiprocessing support, etc.) to hang your DC hat on. And your productivity applications wouldn't be DC-aware.

This leaves us hoping and waiting. But there is reason for that hope. As Apple gets closer to shipping the PowerPC Mac and its workstation-savvy partners start having their effects on Cupertino, we can hope that the PowerPC Mac operating system will make true DC possible.

Until then, try not to think of all those wasted cycles that would make your company a happier place if only they could be used. □

"The multimedium is the message."

Apple of the 1990s: More diverse, serious

Over the past two years, Apple not only has revamped its product line but remade itself. In terms of its organization, its strategy, its place in the market, and its relationships to other industry players and platforms, the company has changed dramatically since announcing that "business as usual" was over forever in Cupertino.

Even rivals and critics acknowledge the difference. The company was once the brunt of condescending comments and disparaging labels — the "toy-computer" maker, the little developer that might, the unsupervised Boy Scout troop. The height of Apple ridicule had to be when English humorist John Cleese portrayed, in a commercial for a competitor, an "average" Macintosh user as a yuppie for whom the price of his computer was no object, as long as its looks fit his décor. But no one is laughing anymore. Apple has become the world's largest producer of personal computers, measured in unit sales.

In a very short time it has come from nowhere to become the No. 1 U.S. producer of portable computers. Despite the recession, it has maintained an annual growth rate in the double digits, well above the industry average. The Mac installed base surpassed 10 million this month. And with new products emerging at record rates, the company's growth promises to accelerate in the coming year.

Perhaps most important, Apple has broken self-imposed taboos that long kept it in isolation from the rest of the industry. Its stunning alliance with IBM Corp., resulting in Apple's commitment to the PowerPC and the launch of the Kaleida Labs Inc. and Taligent Inc. joint ventures, already has reshaped Apple's future, although it so far has had only minimal effect on the company's product line and some observers have speculated that some planned projects might fall victim to IBM's current troubles.

In the meantime, QuickTime, one of Apple's most successful new technologies, already runs on Windows and will, in the future, run on Unix. The majority of the company's revenues from its Personal Interactive Electronics division is expected to come from licensing software technology to competing vendors, another Apple first. And the company has begun farming out production of some products to other manufacturers.

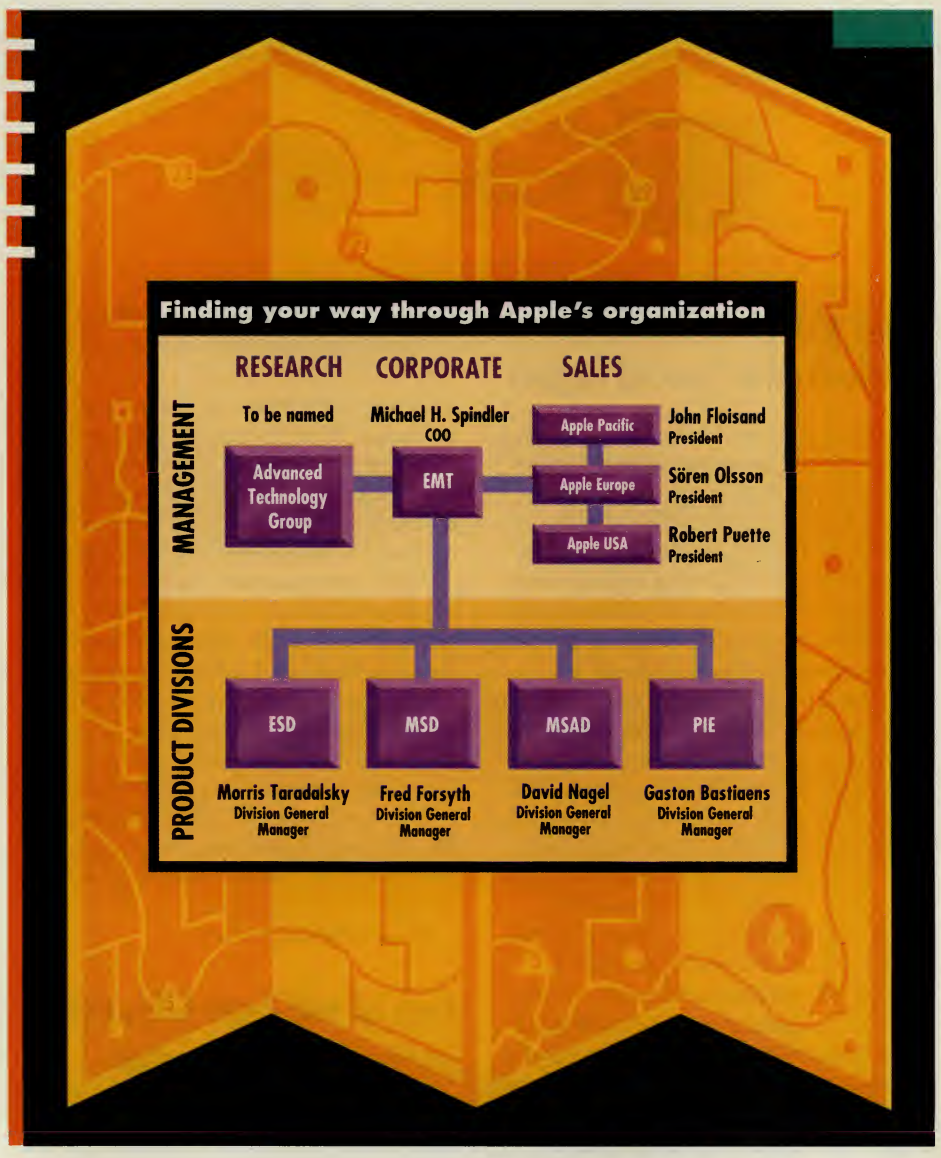
It even has formed a division to explore the strange new worlds (at least for Apple) of server hardware, in hopes of wresting control — or at least a larger share — of file serving for Macs on large networks away from Novell Inc.'s NetWare.

Left in the wake of these changes is a much more complex Apple. The company's executives, acknowledging that you need a road map to know who's doing what in Cupertino these days, say there are really three companies now: one to develop enterprise products (Enterprise Systems Division), one to build consumer electronics (PIE) and one to build Macintoshes (Macintosh Systems Division).

If Apple's new distributed business is confusing to those who live with it every day, making sense of it is all the more difficult for a corporate buyer trying to fathom the company's many initiatives and product lines.

What follows is a series of articles that focus on Apple's five operating divisions. Each will go into what the division is responsible for, what its products are and where its strategy will take customers in the future. □

ILLUSTRATIONS BY GORDON STUDER



Corporate may hold the reins, but decisions made in trenches

By Andrew Gore

Leaders' biggest challenge is to maintain consistency.

Gone are the days when every project at Apple had to be run through a gantlet of executives, each modifying the particulars until what emerged, months later, bore little resemblance to the original concept.

While Apple's ruling authority, the Executive Management Team of the company's corporate division, still reigns over the company, these days it functions more as a council of elders giving advice and direction where needed than the junta it once resembled.

According to executives interviewed throughout Apple, the majority of decisions concerning the direction and form of new products now are being made in the trenches. This has made the company more nimble, allowing it to turn out a flood of new products over the past six months.

But this "hands-off" approach to overseeing Apple's expanding businesses has its dangers. According to Fred Forsyth, senior vice president and general manager of the Macintosh Systems Division, when decisions are made throughout the company on a wide-ranging collection of products, the results can be so diverse that it becomes impossible to fit those products into a unified strategy.

"One of my biggest challenges is to maintain consistency," Forsyth said. "When you have a monolithic organization, you have consistency, but little else but consistency."

According to CEO John Sculley, the man who sits at the top of what could be described as controlled chaos, the decision to create a bedlam of new businesses within Apple was not made on a whim.

Apple at a glance

- Yearly revenue (fiscal 1992): $7.1 billion
- Yearly profit (fiscal 1992): $530.4 million
- Earnings per share: $4.33
- Annual revenue growth rate: 12 percent
- Macintosh installed base: More than 10 million
- Mac unit growth rate: More than 20 percent in fiscal 1992
- Number of employees: About 14,000 worldwide
- Manufacturing facilities: Fountain, Colo. ; Cork, Ireland; and Singapore

"I think it's real clear that there's no way to be a survivor sitting on the tracks waiting for a train to come," Sculley said. "Apple has always been better at offense than defense."

The plan of attack, he said, is to develop a complete line of products, from servers to desktop computers, portables and personal digital assistants, plus the software technology to make it all work smoothly and with a level of intelligence not offered elsewhere. The objective is that when customers choose Apple, they won't just purchase a computer, they'll invest in a solution.

"There's no question that what we're tackling is more complex than what we were tackling before," said Joseph Graziano, Apple's executive vice president and chief financial officer. "The real key for Apple is growth. If we don't grow then we'll have to change the model.

"We have to experience significant market-share growth to maintain our business," Graziano said. "As we gain market share, we become a greater force in the industry. You strengthen your franchises, you gain momentum and people. This will make it harder for Microsoft [Corp.] and others to compete with us.

"So, the key thing in the long run is really the new businesses," he said. □

Macintosh Systems Division: Its business is critical to the bottom line but volatile

By Andrew Gore

Division's role is to keep up with the steady supply of new products.

The Macintosh Systems Division is at the core of everything Apple does, both strategically and financially. Its product lines, which encompass desktop and portable Macs and peripherals, may not be as chic as personal digital assistants, but its importance is undisputed: As MSD goes, so goes Apple.

The division currently generates the vast majority of Apple's revenues and profit. And while everyone from CEO John Sculley on down has expressed a strong desire to shift the company away from dependence on moving boxes, such a fiscal transition will take years to complete.

But if MSD's business is the most critical to the bottom line, it also is the most volatile. According to Fred Forsyth, senior vice president and general manager of MSD, the division is still in the process of a major rework, which, when complete, will help make Apple one of the fastest innovators in a marketplace filled with nimble developers.

"About 20 months ago we started over from scratch, setting up the business for speed, especially speed around decision making," Forsyth said. "[We've] put the engineering folks, marketing folks, software folks and connections to manufacturing into a single product team.

"We're trying to get accountability down to the lowest possible level," Forsyth added. "We're not quite there yet, but there are signs that we're making progress."

Those signs include the rapid introduction of new PowerBook models, which promises to continue in the coming year (see story, left). And although PowerBooks are undeniably MSD's hottest property, they are not the division's hottest sellers.

That distinction goes to the LC II. Brodie Keast, director of CPU product marketing, said the low-cost modular system is the best-selling Mac of all time, far exceeding total sales of all PowerBooks. This success has come in the face of plummeting price tags on 486 clones, which easily outperform the LC.

From the low end to the top-of-the-line Quadra 950, Apple's desktop products have had phenomenal success since the company started pricing Macs more competitively with IBM PCs and compatibles, according to Keast. Last month's introduction of inexpensive 68040 Macs should help Apple continue to play outside the price-performance curve of PC clones.

"We can't ignore the clones nor should we be driven by them," Forsyth said. "The competition is improving their performance, so we have to [improve] ours. But we don't just make it an engine game; a lot of cars are sold that aren't the fastest on the road."

Three things go into deciding what makes a good Mac, according to Keast. "It has to fit our mission, to develop technology that is easy to use for ordinary people," he said.

See MSD, next page

PowerBooks to push harder on Apple's advantages

It's hard to argue with success. And with 500,000 systems sold in less than a year and a half, Apple's PowerBooks arguably are the biggest hit the company has ever had.

But maintaining success, much less topping it, is a daunting challenge.

"The fundamental PowerBook strategy is going beyond smaller, lighter desktop computers; [it's] to recognize that portable computers are really different," said Randy Battat, Apple vice president of portable computing.

"Certainly, we need to keep up with companies that are innovating — keep up with the Joneses in size and performance and hard disk capacity," Battat said. "But more important, we need to continue to differentiate our products through better-designed hardware and software."

Rapid turnarounds, the introduction of incrementally improved models at a fast pace, is one way Apple plans to keep in front of competitors.

For example, Apple introduced its first color portable, the 165c, last month. It is nearly identical to the PowerBook 180, except that instead of a four-bit gray-scale active-matrix display, the portable comes with an eight-bit color passive-matrix screen.

Some time this summer, sources said, the company will add a model sporting active-matrix color (see MacWEEK, Jan. 4).

In addition to bringing innovations such as color screens and larger drives to the line, Apple needs to continue capitalizing on its capability to integrate hardware and software, Battat said.

The PowerBook Express Modem, which uses special software to piggyback communications processing on the PowerBook's CPU, dramatically lowered the cost of high-speed modems. According to Battat, users can expect to see Apple make similar strides in other areas critical to portable computing.

Delivering innovative products is only half the battle, however. "If PowerBook sales are to continue growing faster than the portable-computing market, we need to reach out beyond the Mac installed base," said Neil Selvin, Apple director of portable-computing marketing.

According to Selvin, about 25 percent of all PowerBook users never owned a Mac before, and about half of those previously owned DOS-based systems. With packages such as the Macintosh DOS Companion that make connecting a PowerBook to a DOS system easier, and with marketing targeted specifically at DOS and Windows users, Apple hopes to garner an increasing percentage of its sales from the IBM PC and compatible community.

In fact, there are no sacred cows in Apple's drive to increase its lead. Both Battat and Selvin said they expect that some future PowerBook models could even compete with Apple's personal digital assistants.

"If there is cannibalization of Newton sales as a result of a PowerBook product, better that Apple cannibalize its own product lines than for a competitor to do it," Battat said.

If PowerBook sales continue to grow at current rates, Apple could see a day when the majority of its revenue comes from portable products. Currently, Apple is experiencing higher sales growth for portables than for other parts of the company's business, Battat said. And, although only one out of every five or six computers being shipped today is a notebook, Battat observed that by 1995, notebook sales could eclipse those of desktop systems.

— By Andrew Gore

ED CALDWELL

Leading the company to its biggest success ever are, from right to left, Neil Selvin, marketing; John Medica, engineering; and Randy Battat, leader of Apple's portable group.

MSD at a glance

MISSION

Design and produce Macintosh hardware, including portables, peripherals and desktop systems. Currently, all manufacturing for Apple (including for ESD) is handled by MSD.

PRODUCTS

- Mac Classic line
- Mac LC line
- Mac II line
- Performa line
- Centris line
- Quadra line
- PowerBooks
- LaserWriters
- StyleWriters
- Color printers
- Scanners
- Displays

MSD

From previous page

"This explains why we've never gotten directly into workstations."

It also has to have broad market appeal. The days of Apple building a cool Mac that nobody is willing to pay for are over. "We've got to be able to sell millions, not thousands of units," he said.

And any new Mac has to be different from the competition. That's why, although Apple could build a cheap PC clone, the company wouldn't unless it could see a way to make it better, Keast said.

New Mac models, Forsyth noted, also have to compete, in a sense, with products that are unreleased or even unannounced but widely anticipated by savvy customers. Apple, for instance, has to convince corporate buyers that investing in '040-based machines makes sense even when Pentium-based Windows systems and PowerPC Macs are due within a year.

The challenge for MSD, then, is to keep the pipeline filled with interesting new products, keep those products in good supply (manufacturing also is under the MSD umbrella), and make sure those products are just cheap enough to keep customers from opting for less expensive clones.

The division also has to make sure that new products don't start coming so close together that users opt to wait for the next iteration.

"To say that it's tougher to manage four times as many products with half the product life cycle is a major understatement," Forsyth said. "The complexity certainly goes up. There also is a point [with faster introductions] of diminishing returns where people will say they'll just wait for the next product." □

Imaging products go whole-hog in '93

Peripherals usually aren't the first things to come to mind when someone says "Apple." Nevertheless, 25 percent to 30 percent of Apple's revenue comes from printers, monitors and scanners, according to Duane Schulz, Apple director of imaging products marketing.

In fact, Schulz said, Apple dominates almost every market for Mac peripherals and is the No. 1 vendor of Mac laser printers and color displays.

The company's current sales lead is quite a change from the days when its few offerings were aimed at users looking to buy prepackaged Mac systems. "The progress we've made is from a point product line to a complete imaging lineup," Schulz said. "We've gone from a focus on the Mac user to the visual-graphics user; our goal is to dominate the market where people are incorporating a lot of visual content."

To achieve this goal, Schulz said, Apple has focused its attention on:

- Windows. The graphics users Apple is targeting are not limited to Mac owners. In fact, Schulz said, the imaging products group has led the way in Apple's attempts to crack Windows.

"Absolutely, we're going after Windows," he said. "You'll never get a networked laser printer from us without a [parallel] port again."

So far, Apple's products have had mixed success in the Windows market, Schulz said.

Some products have been surprisingly successful with Windows users, he said. For example, 21 percent of LaserWriter IIg printers are being used with IBM PCs and compatibles, despite that model's lack of a parallel port.

On the other hand, Schulz said, Apple's cross-platform gray-scale OneScanner has not sold well to Windows users, even though it holds 50 percent of the Mac gray-scale scanner market.

- Color imaging. Schulz said Apple designed its first color input and output devices, introduced at the San Francisco Macworld Expo in January, to meet three criteria: cost, quality and performance. That's why the company went with less-expensive and lower-quality inkjet technology for its first color printer instead of a costlier, higher-quality product, he said.

"We're trying to move people to color as easily as possible," Schulz said. "Coming out with a very expensive printer as our first offering wouldn't [help ease] the transition."

- Low-cost displays. Apple is looking at supplying more low-cost color-display solutions for the new breed of Mac users, Schulz said.

"There are an awful lot of [PC users] who don't care about the difference between a VGA monitor and a Mac monitor that costs $200 more," he said. "There are a lot of Mac customers who aren't willing to pay for a Trinitron monitor."

According to Schulz, however, the main criterion for Mac displays remains screen quality.

- Improved visibility. Schulz expressed frustration with users' apparent lack of knowledge about Apple's imaging products.

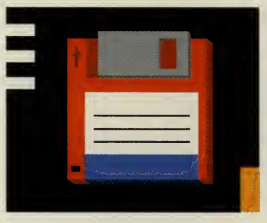
He cited a recent marketing survey in which many users characterized Apple as a top vendor of color laser printers. Apple does not currently offer a color laser printer, however. — By Andrew Gore

Mac Software Architecture Division's job is maintaining the 'Mac advantage'

By Henry Norr

Now under the leadership of David Nagel, MSAD is responsible for working to improve and extend the Mac OS.

These days, new operating systems are sprouting in Cupertino like mushrooms after a rain. But now and for the foreseeable future, the venerable Mac operating system will remain the product that defines Apple in the public eye and holds the key to its fortunes.



Maintaining and enhancing that system has been, since April 1991, the responsibility of the Macintosh Software Architecture Division. Its job is to give new and compelling meaning to an old Apple marketing phrase — "the Mac advantage" — now that the graphical user interface, the feature that once defined the Mac, is all but standard on other platforms.

MSAD hardly is the only group at Apple producing system software: Even excluding the work under way at Taligent Inc. and Kaleida Labs Inc., the company's joint ventures with IBM Corp., project teams developing new hardware in the Macintosh Systems Division develop model-specific code, while the Enterprise Systems Division has responsibility not only for A/UX and enterprise-level connectivity software but also for one of the company's most popular software products, AppleTalk Remote Access.

But central responsibility for the OS falls on MSAD's staff of more than 1,000 — a majority of them engineers, according to the company. Their mandate translates into a variety of tasks.

Supporting new hardware. It's MSAD's task, in collaboration with the company's hardware-development groups, to get the system ready to stand on new hardware foundations, such as the upcoming "Mac III" line and the PowerPC Macs beyond that. This entails a daunting dual challenge: taking maximum advantage of capabilities scarcely dreamed of by the OS' creators a decade ago, yet ensuring a high degree of compatibility with the applications running on 10 million older Macs.

Developing new features. Having lost its 1980s monopoly on the point-and-click interface, Apple is aiming to distinguish the Mac in the mid-'90s and beyond with an array of new system-software features it hopes will attract innovative applications and, thus, new customers. Many of the ideas come from the company's Advanced Technology Group, but it's up to MSAD to bring ATG's inspirations down to earth in the form of application programming interfaces (APIs) for developers and new extensions, utilities and system releases for users.

The list of these technologies is long and by now well-publicized: QuickTime, WorldScript, AppleScript, AOCE (Apple Open Collaboration Environment), QuickDraw GX and TrueType GX, and the Casper voice-recognition system. Of these, only QuickTime and the foundations of WorldScript (built into System 7.1) have been released; the rest remain somewhere over the horizon.

Updating the plumbing. Less visible to users but ultimately critical to the aging OS' ability to withstand competition from the likes of Windows NT and OS/2 is a series of improvements to the system's innards.

One such enhancement, the Easy Open format-translation software,

JAMES ARONOVSKY/PICTURE GROUP

David Nagel has taken the helm of MSAD now that Roger Heinen has left for Microsoft.

shipped to developers last winter. Others scheduled for this year include the Shared Library Manager, a scheme that, like Microsoft Corp.'s Dynamic Link Library mechanism, lets several applications access the same code and, thus, helps to limit ballooning memory requirements. In addition, a new technique slated to appear first with AppleScript will allow extensions to be loaded without taking any significant amount of memory except when in actual use, and an updated SCSI Manager will allow owners of newer high-end Macs to take better advantage of the capabilities of their hardware.

Eventually — perhaps in 1994 — the groups will roll out a microkernel, a new substrate for the system that will create a framework for the gradual addition of advanced features such as memory protection and pre-emptive scheduling on both 680x0 and PowerPC Macs.

Cross-platform APIs. Although there are persistent rumors that Apple has a version of the Mac OS for Intel-standard machines up and running in its labs, MSAD officials acknowledge only that they plan to port selected Apple APIs to Windows. QuickTime has already made the jump; Apple events, AOCE, QuickDraw GX and others may follow eventually.

Developer tools and support. "Apple is still No. 1 in services and support to developers," said Kirk Loevner, who as vice president of the Apple Developer Group within MSAD oversees the company's $60 million-per-year effort in these areas. The program encompasses developer technical support, including recently opened centers in Europe and Japan; a variety of developer publications and training courses; the Partners and Associates program; and that ancient Apple tradition, evangelism.

Most critically, MSAD is responsible for giving developers the tools they need, including the current Macintosh Programmer's Workshop and MacApp and future PowerPC compilers and Bedrock, the upcoming cross-platform application framework.

"We're being lobbied for more efficient tools by the developer community and that's a lot of what we're focusing on [now]," said David Nagel, the Apple senior vice president who last month took over as general manager of MSAD after the abrupt defection of his predecessor, Roger Heinen, to Microsoft.

Marketing. MSAD's responsibilities extend to generating revenues directly from system software, by marketing reference releases, recently released extensions, and utilities such as At Ease and Macintosh PC Exchange. Loevner's group, in an effort to help small developers in particular, soon will get into distribution of third-party software — first demo versions, then complete applications in encrypted form — on CD-ROM; Nagel said the company even hopes to make this initiative into a profit center.

Heinen's resignation sent shock waves through the organization, but insiders said that the appointment of Nagel allayed their concerns and that there has been no change of course. "We haven't lost any momentum," said Rick Spitz, senior director of Macintosh system software who is responsible for MSAD product development. "We're just marching ahead, and we haven't missed a beat."

The plan MSAD is pursuing is one hammered out over the last several years. It involves regular release of new extensions and utilities on a commercial basis as soon as they are complete, with major APIs to be folded into "reference releases" of the OS at intervals of about 12 to 18 months.

While industry observers credit MSAD with bringing a degree of order to Apple's system-software development programs, many problems remain. The decision to charge customers for such software has generated many complaints, not only from those who reject the whole principle but also from many who understand its necessity but question details of Apple's pricing policies.

The group's ability to complete its projects in a timely way also is open to some doubt. Nagel insisted early this month that "most of the programs are on schedule or near schedule," and because Apple never committed publicly to release dates for such innovations as AOCE and QuickDraw GX, they can't be described as late. But insiders report that deadlines have slipped badly: Developers have been told, for example, not to expect QuickDraw GX — a project under development at least since 1988 — until late this year.

Still another challenge for MSAD, as it manages a potentially bewildering array of system enhancements, is to develop and communicate a clear message to users and developers alike about the company's software directions. Charlie Oppenheimer, director of Macintosh system-software marketing, acknowledged that results so far are mixed: "I think we've done a pretty good job explaining the underpinnings of technologies like AOCE and AppleScript, but we've got to do a lot more work to explain how they add up to superior solutions." □

MSAD at a glance

MISSION

Promote Mac sales by improving the Macintosh operating system. Produce utilities that enhance the user experience and new APIs that help developers create innovative applications. Provide system-software support for new hardware, including the PowerPC processor. Port selected Mac APIs to other platforms. Provide support and tools for Mac developers.

PRODUCTS

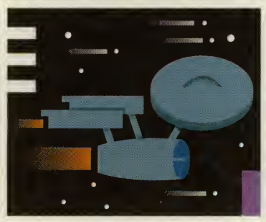
- **System 7**
- **Current system extensions: QuickTime, At Ease, Macintosh PC Exchange**
- **Upcoming extensions: QuickDraw GX, AOCE, AppleScript**
- **Developer tools and publications**

Enterprise Systems Division rethinks the role of networking in the Mac system

By Mitch Ratcliffe

New retail products will work with TCP/IP, Unix.

The "enterprise" in Apple's Enterprise Systems Division has given some users the impression that the group is focused strictly on the networking needs of the company's largest customers. But that assumption, Apple executives argue, underestimates the scope of ESD's work.



In fact, they said, some of the division's projects — including re-examining how network protocols and services are incorporated into the Macintosh operating system and developing a new architecture for Apple's proposed "client-client-server computing model" — could touch every Apple customer in the coming years.

In the year since the division was formed out of Apple's former Networking & Communications Group, it already has reorganized the marketing of some key connectivity software. The Data Access Language (DAL) extension was unbundled from the Mac OS, and developers previously permitted to bundle the company's TCP/IP communications stack, MacTCP, have been advised that they could lose that privilege.

This year Apple shipped DAL server software for IBM Corp.'s popular AS/400 minicomputer. Later this month, ESD will premiere its Quadra 950-based file and database server, which reportedly will ship with A/UX and a new AppleShare that complements a high-speed I/O card. Also due this year is a multiprotocol version of AppleTalk Remote Access.

"To help Apple grow its market share, we're going to do things that are right for Apple, whether ESD makes a profit or not; on the other hand, we also are aiming to build a sustainable business," said Morris Taradalsky, Apple's vice president and general manager of ESD.

But the road to divisional profitability has turned rocky on occasion. Some users and developers raised an uproar when ESD increased the site-licensing fees for MacTCP.

"There was a lot more read into the [MacTCP] announcement than what was announced," said John Naumann, senior director of ESD's Integration Technologies Group. ESD plans to sell MacTCP as part of a network connectivity bundle in 1993. Developers who bundle MacTCP with their products were notified that Apple can withdraw its licensing for the TCP/IP communications stack with six months' warning.

"We have no intention of issuing that warning any day now. That was a way to make sure that we had better control over the software; it was in no way an attempt to pre-empt the developers," Naumann said.

Apple executives have begun talking about client-client-server computing, in which multiple personal computers, including Newtons and PowerBooks, relay communications through a desktop Mac before connecting to the LAN. According to Jim Groff, ESD marketing manager, the division is depending on Apple's blueprint for cross-platform, companywide networking, called VITAL, to smooth the introduction of client-client-server products.

"VITAL is a model for how a new world infrastructure — not just desktop computers but also portable devices, workgroup systems and servers — fits into an overall IS (information systems) applications infrastructure," Groff said. "What has to happen for Apple to be successful is that products that come out of PIE (Apple's Personal Interactive Electronics Division), products that come out of the portables group and the desktop group, and the servers that come out of ESD must play together in a very synergistic, modular, easy-to-use way."

ESD this year plans to introduce a collection of connectivity and

See ESD, next page

PIE division moves away from Newton-mania

By Andrew Gore

In a pre-emptive strike last May, Apple single-handedly defined the nascent personal digital assistant market by offering a preview of its Newton technology.

The unveiling at the Consumer Electronics Show in Chicago stole headlines and ignited debate among pundits and potential customers alike. But since then Apple has been uncharacteristically quiet, even evasive, about its personal digital assistant (PDA) plans. When it announced a second PDA project in June — a multimedia player code-named Sweet Pea to be developed in collaboration with Toshiba Corp. — Apple offered virtually no details.

Last spring's enthusiasm in the media has given way to a more negative tone, with recent reports focusing on delays inside Apple's Personal Interactive Electronics division, the group responsible for Newton and the company's other consumer devices.

Many would-be competitors, including Apple spin-off General Magic Inc., have announced their own strategies to build PDAs. It seems without shipping a single product, PIE already has lived through the entire product line life cycle, from initial customer infatuation to disillusionment and division of the market by competitors.

Aware that its flagship product, Newton, had become something of a scapegoat for industry frustrations, PIE trotted out its latest notetaker prototype for a Newton "status report" at the Consumer Electronics Show in Las Vegas in January.

However, unlike last spring's initial Newton showcase, the event offered little in the way of new information, except a firm statement from Apple that Newton will ship by the middle of the year. Nothing was said of any other PIE project.

The only other product sightings have been "Newton under glass," a nonfunctioning prototype in a sealed case displayed at Apple's trade show booths over the last few months.

What follows is a survey of PIE's four strategic initiatives. Except where noted, Apple refused comment. PIE was the only one of the four Apple product-development groups that did not cooperate in this report. PIE officials said Gaston Bastiaens, who became the division's general manager in July, was not ready to give interviews.

- **Newton.** The Newton notetaker that will officially debut by June will resemble the prototypes previously demonstrated — the design hasn't changed much since May, according to Burt Cummings, director of marketing at PIE. It will still come in a sleek case with a serial port and a pen for input; an infrared link will allow point-to-point connections between two Newtons.

The handheld initial model, according to sources, will be followed by a larger device, about the size and shape of a clipboard, that will use the same operating system.

Some pieces of the originally planned PDA environment, such as a full communications stack that can support collaborative and wireless networking, will be missing from the first devices, sources said. These features reportedly will be added to future models.

Apple's marketing focus for Newton has shifted since last spring. Officials have downplayed talk about the consumer-electronics market, putting their emphasis instead on custom-forms solutions for business. This seems to reflect a realization that it'll take more than cool technology to sell an $800 device to the general populace.

This Newton prototype garnered Apple a lot of press. But when it didn't appear last December, praise turned to criticism.

JOHN GREENLEIGH

- **Sweet Pea.** The status of Apple's interactive CD-ROM player isn't clear. The $1,000 3-pound unit is due this fall, but sources said PIE may shelf plans to use Script X, a project under development at Kaleida Labs Inc. Instead, the first Sweet Pea could use a special version of QuickTime.

Another idea that reportedly has received serious consideration at PIE is a HyperCard player. This project actually pre-dates Sweet Pea, sources said, and was being worked on jointly between Claris Corp. and Apple before HyperCard was returned to Apple last month (see MacWEEK, Feb. 1). Its fate in light of HyperCard's move is not known.

- **Communicators.** PIE reportedly plans to build a family of intelligent communicators capable of carrying both voice and data over the airwaves. The current prototype looks suspiciously like the clipboard-shaped, PenPoint-based communicators from EO Corp. of Mountain View, Calif. But while Apple has prototypes, sources said the designs are strictly exploratory and the company is a long way from shipping.
- **Information services.** What Apple executives reportedly see as the best route to revenue from PIE, in the short run at least, is information services. A deal recently struck with America Online Inc. of Vienna, Va., for the company's software marks PIE's first step into on-line consumer services, such as travel planning, electronic mail, fax mail and, ultimately, software sales via modem.

"I like to think of [PIE] mostly as information services," said Joseph Graziano, Apple's executive vice president and chief financial officer. "I think ultimately hardware is not the key focus there."

Information services also could include publishing content, such as electronics maps, sources said. PIE is one of several groups at Apple reportedly exploring this area. □

PIE at a glance

MISSION

Develop consumer-oriented, non-Macintosh-based systems and software. License both software and hardware to other vendors to build their own PIE-derivative devices. Supply information services.

PRODUCTS

- Newton note-taker
- Newton clipboard
- Sweet Pea interactive media player
- Personal communicator
- Information services

ESD

From previous page

developers tools, under the rubric Apple Integrated Architecture, that Taradalsky said will facilitate seamless Newton-Mac-server links and broader enterprise connectivity (see MacWEEK, Jan. 4).

Naumann said that customers will be able to turn to outside consultants for help in entering the VITAL era. Training programs already are under way, and Apple has announced that several database applications are VITAL-compliant. However, users will not be able to go to their local software dealer and pick out VITAL-approved products without help from Apple or a trained consultant.

Engineers working in other crannies within the ESD organization are designing futures for Apple's desktop and server product lines. The open-systems group, which operates under Bruce Cleveland, a senior director in ESD, is working on the Unix-derivative PowerOpen operating system.

"We're talking about the PowerOpen world as more of a back-end system," Cleveland said. "Notebook computers and handheld devices will revolutionize the way people design applications, and the programming interface needs to be uniform across those environments."

According to Cleveland, the PowerOpen team is trying to bolster AppleTalk to better support enterprise needs while working with the standard internetworking protocols, TCP/IP and Open Systems Interconnection, to make sure that 680x0- and PowerPC-based Macs, Newtons, and Apple servers can play on the largest corporate networks.

"The fact is there will be other environments that are out there, including Windows NT, Windows for Workgroups and so on, and we need to interoperate with them," Cleveland said. □

ESD at a glance

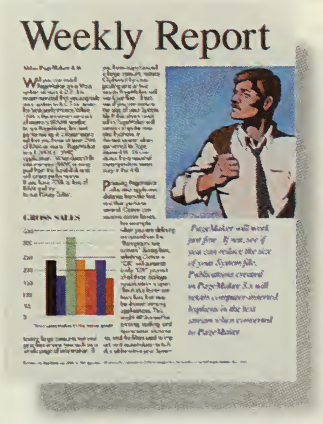
MISSION

Develop and sell enterprise software, hardware and services with special attention to solutions that help integrate a variety of systems. ESD is Apple's standard-bearer for VITAL and client-server.

PRODUCTS

- A/UX
- AppleTalk Remote Access
- AppleShare
- Apple servers
- Network protocols
- Network router hardware and software
- DAL/DAM
- Connectivity APIs
- Network gateway products

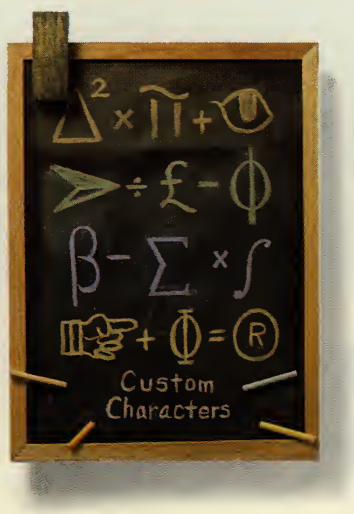
Why 8 out of 10 professionals choose OmniPage Professional.



Only *OmniPage* accurately scans words and images up to 256 shades of gray with the Graphic Editor.™

Only *OmniPage* reaches scanning speeds of up to 2000 words per minute with Caere's 32-bit OCR.

Only *OmniPage* reads 11 different languages, including French (oui!), German (ja!), and Italian (si!).



Only *OmniPage* gets the read on the most unusual characters with OmniTrain.™

Only *OmniPage* features AnyFont, HP AccuPage,™ and Caere AnyPage™ technologies, so it handles any page of text – even when your coffee cup gets in the way.

Only *OmniPage* features direct input through DDE or Apple Events,™ enabling you to scan directly into popular business applications.

When it comes to OCR (optical character recognition), no other product can match the overall performance of *OmniPage* Professional. That's why 8 out of 10 business professionals consistently choose *OmniPage* Professional over all other options. Only *OmniPage* Professional has the full capabilities to *accurately* scan virtually any document into almost any word processor, spreadsheet, or database file. So you can use *OmniPage* Professional to accurately scan newspaper articles, business reports, journals or legal documents. It's not surprising then that 8 out of 10 scanners in the world have shipped with a trial version of *OmniPage*, including those from Hewlett-Packard, Epson, Microtek,™ and Apple. Why would they be any different than the rest of us?

For a few more reasons why you should consider *OmniPage* Professional, call us now at **1-800-535-SCAN.**

CAERE®

Caere, the Caere logo and OmniPage are registered trademarks of Caere Corporation. The Graphic Editor, OmniTrain and AnyPage are trademarks of Caere Corporation. Epson is a registered trademark of Seiko Epson Corporation. All other ® registermarks and ™ trademarks are of their respective corporations. ©1992 Caere Corporation.

Now Your Mac Does Windows Too.

New SoftPC® with Windows™ not only lets your Macintosh run Windows applications, it's been accelerated to really shine with Microsoft Windows 3.1.

SoftPC is the software only solution that lets you run more than 50,000 standard and custom DOS applications on your Macintosh.

And now, SoftPC with Windows, the newest member of the SoftPC family, *includes Windows installed and ready to run.* Plus, we've added special optimized drivers to give you the performance you need.

So while a PC is just a PC, SoftPC with Windows makes your Mac *both* a Mac *and a PC with Windows.*

At a click, you can run any standard-mode Windows application you want. VGA graphics too, of course.

Click again, and you're back on the Mac track.

Ask for "SoftPC with Windows" where you buy Mac software, or call us for the name of your nearest dealer. After all, if you can run Windows and have your Mac too, you've got a very clear advantage.

Microsoft Windows 3.1
Pre-installed and ready to use

Insignia® Solutions
Bridging Worlds Of Software™

For information on all Insignia's products and services, call our toll free Fax Response Service at **800-8-SOFTPC**.
Insignia Solutions Inc., **800-848-7677**. 526 Clyde Avenue, Mountain View, CA 94043. FAX (415) 964-5434. Call (415) 694-7600.
Insignia Solutions Ltd., Chippendale Court, Kingsmead Business Park, Frederick Place, London Road, High Wycombe, Buckinghamshire, HP11 1JU, UK. FAX +44 494-459720. Call +44 494-459426.

SoftPC and Insignia are registered trademarks of Insignia Solutions Inc. Windows is a trademark and MS-DOS is a registered trademark of Microsoft Corporation. All other product names are trademarks or registered trademarks of their respective holders.

Reviews

▸ PowerPrint/LT. See Page 44.
▸ Frontier. See Page 45.

Alias renders quick Sketch! 3-D illustrator much improved

Upgraded design tool adds features, smooths interface, speeds redrawing.

By Philip Bishop

Alias Research Inc.'s Sketch! 1.5 stakes a credible claim at being a full-featured 3-D design tool that graphic artists will gladly use alongside their 2-D illustration packages.

The new version of the spline-based modeler and renderer improves redrawing and rendering speeds and offers enhanced texture mapping, a new hole-cutting capability, increased file-format support — including RIB (RenderMan Interface Bytestream) export — and several other improvements.

Remarkably, for a program that originally shipped at $1,995 and is now a more-modest $995, the upgrade for registered users is a mere $25.

When we reviewed the second "final" release, Version 1.0.2 (see MacWEEK, March 30, 1992), we found an application that was power-packed and easy to use for a 3-D illustration tool but suffered from excruciatingly slow screen redraw and rendering speeds.

Redraw speeds have been greatly improved: A Mac IIfx or Quadra now can keep up with redrawing most models in a reasonable time. More importantly, you now can turn off the redraw of objects behind dialog boxes, and you no longer have to wait for objects to redraw before switching to another task or making a change.

Power-hungry. While a CPU-hungry program such as Sketch! begs for a RISC-based system, Alias has rewritten some of Sketch!'s code in an attempt to wring more speed out of the 680x0 family. As a result, Alias claims up to a 100 percent increase in ray-trace rendering speeds.

Our tests showed that some complex designs did indeed show considerable improvement in ray tracing, sometimes close to twice the speed. For simple shapes, rendering was only slightly faster.

The Phong shading, which is much simpler than ray tracing and suitable for many applications, retains its good speed.

Overall, the quality of Sketch!'s renderings is very good, particularly at the highest, anti-aliased settings. This applies to both the ray tracing and the Phong shading.

Users will appreciate the information bar added to the bottom of the rendering image window. It tells you what percentage of your rendering is complete and how many scan lines are left to render.

The Smoothness command in the Appearance menu has been separated into two commands, one for Wireframe Smoothness and one for Rendering Smoothness. This lets you model with a rougher (and faster) appearance and then render at a higher precision without having to change the Smoothness settings. These settings can be applied individually to parts of a model to emphasize quality in some parts

See Sketch!, next page

Alias Research's Sketch! 1.5 now supports automatic import of type outlines (and other compound shapes) from Adobe Illustrator and Aldus FreeHand.

RATINGS KEY

◆◆◆◆◆ *Excellent*
◆◆◆◆ *Very good*
◆◆◆ *Good*
◆◆ *Fair*
◆ *Unsatisfactory*

score card

Sketch!

Alias Research Inc.
Overall value ◆◆◆ **Version tested: 1.5** **List price: $995***

With Version 1.5 of Sketch!, Alias has addressed many of the problems encountered by users of Version 1.0.2. The spline-based modeler and renderer has faster screen redrawing and rendering speeds — in some cases, nearly twice as fast as its predecessor. Sketch! now lets you faithfully and painlessly import text and other outline files from Aldus FreeHand and Adobe Illustrator, and you can export models as RIB (RenderMan Interface Bytestream), DXF (Drawing Interchange File), Encapsulated PostScript and IGES (Initial Graphic Exchange Specification) files. For the package designer, Sketch!'s texture mapping has been significantly streamlined and enhanced. The upgrade, at $25, is a bargain, while at $995, first-time buyers may balk. Missing text tools and other production features are due in a late summer upgrade.

Performance ◆◆◆ **Ease of use** ◆◆◆
Features ◆◆◆ **Documentation/support** ◆◆◆◆

** Upgrades from Version 1.0.2, $25.*

Inline's PBTools takes the road less traveled

By Dale Coleman

Many product developers confuse an abundance of features with utility. Some of us, however, are better satisfied with a simple set of tools that provide only the essentials for managing the tasks at hand.

In the ever-expanding category of Mac PowerBook utilities, PBTools, created by longtime Mac freeware developer Bill Steinberg and marketed by Inline Design, is such a tool.

The reason why battery life is a major topic of conversation in the PowerBook community is that, as with youth and wealth, available battery charge too often is a transient phenomenon. While other PowerBook utilities attempt to ameliorate every known PowerBook shortcoming, PBTools is focused tightly on battery-charge conservation. Only a few features found in the product are not related directly to battery issues.

Overview. The $99.95 PBTools is a control panel that does not modify or patch the system. It manages to squeeze more mileage out of the single menu-bar icon than any similar product we've encountered. This icon tells you if the PowerBook is running on the battery, if the AC adapter is connected, or if the battery is being charged in fast or trickle mode. It displays nine levels of battery charge ranging from empty to full. The icon changes to a thick up arrow if the Caps Lock key is engaged. This same icon also indicates the status of the hard drive (spinning, starting up or sleeping) and whether AppleTalk is on or off.

The icon's menu contains commands to set system sleep and hard drive sleep, to wake the hard drive, to specify which of two batteries is being used, to toggle AppleTalk on

See PBTools, next page

score card

PBTools

Inline Design
Overall value ◆◆◆◆ **Version tested: 1.0.1** **List price: $99.95**

PBTools is a well-focused suite of utilities for PowerBook owners that concentrates solely on the issue of battery-charge maintenance. All of the basics, including battery and AC power settings for automatic management of system sleep, drive sleep and backlight dimming, as well as necessary keyboard equivalents, are here. The PowerWatch feature provides the best and most flexible battery-charge usage tools we have seen. The documentation, while rough in a few places, is a very good introduction to PowerBook usage issues, and help balloons contain enough information to actually be helpful. If you want a package that is crammed with features, PBTools isn't it, but we think it addresses the core issue better than anyone else in the market.

Performance ◆◆◆◆◆ **Ease of use** ◆◆◆◆◆
Features ◆◆◆◆ **Documentation/support** ◆◆◆

Sketch!

From previous page

and rendering speed in others. This is a great improvement over the earlier version.

New faces. Sketch! 1.5 adds Faces (2-D surfaces) to its repertoire of modeling components. Any 2-D outline can be converted to a face, and faces can be distorted and bent like other Sketch! objects. You also can create holes in faces, a feature lacking in the previous version. Now it's simple to quickly create voids within shapes by extruding or revolving an object with a hole. Creating a hole in a face couldn't be easier: You simply make the target face live, then create another face on top of it that you want to convert to a hole, and finally, you choose Add Hole to Face from the Edit menu. One gripe we have with this feature, however, is that holes cannot intersect an edge to create, for example, a groove.

Texture mapping has been significantly enhanced in Sketch! 1.5. The Position Materials dialog box has new controls that make it easier to orient artwork to map onto an object. The most impressive additions are the inclusion of Projection and Environment mapping. Projection mapping gives the appearance of a bit-mapped image shrink-wrapped on an object, while Environment mapping makes an object appear to reflect its surroundings. Both techniques use one of four mapping types — Cubic, Planar, Spherical or Cylindrical — depending on the type of object to which you are mapping.

Illustration gap. Sketch! 1.5 corrects a couple of shortcomings of Adobe Illustrator and Aldus FreeHand. With Sketch 1.0.2, when you imported outline text (or other compound objects) from Illustrator you had to laboriously break and rejoin outlines and holes to form a single contiguous surface. In Sketch! 1.5 these surfaces are automatically attended to. Version 1.5 now lets you import FreeHand files.

We were disappointed that Sketch! still lacks direct text support, something we believe is essential in any 3-D design program that purports to serve 2-D designers.

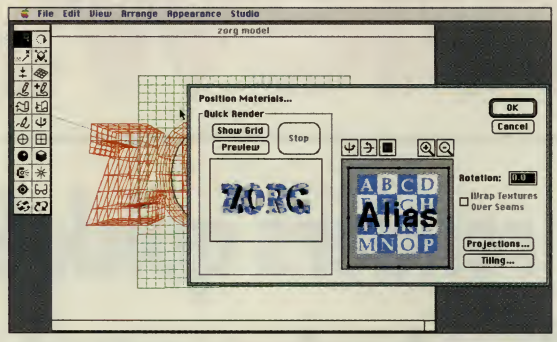
The lack of text support was one of the reasons we preferred Ray Dream Inc.'s Ray Dream Designer over Sketch! (see MacWEEK, May 4, 1992). Alias said there wasn't time to include this feature in Version 1.5 but that it will be a part of Version 2.0, which is scheduled to be released by summer. While designers who already have an illustration package can import and extrude text without extreme effort, Sketch! lacks some important type-related tools, such as kerning and text on a path, and 3-D type tools such as bevels.

On another note, we'd like to see more than one level of Undo.

Other changes. As well as importing Illustrator and FreeHand outlines, you can now export Sketch! files in RIB (RenderMan Interface Bytestream), DXF (Drawing Interchange File), IGES (Initial Graphic Exchange Specification) and Encapsulated PostScript.

The Materials dialog box has been redesigned, streamlined and enhanced. In the Color dialog, you now can give an object a glowing effect, while Transparency includes new refractive qualities, including air, water, glass, crystal and diamond. These determine how light bends as it passes from one medium to another.

Documentation is still thorough. An addendum covers changes to Version 1.5, and the software and upgrade now come with a helpful videotape tutorial.



Sketch! 1.5's new texture-mapping capability will be a boon to designers. It's fairly simple to adjust placement of a bit map on the model.

One of the simplest but most powerful enhancements to Sketch! 1.5 is the ability to cut holes in surfaces with other surfaces. This object was created by cutting a hole in a surface and extruding and rendering the result.

Conclusions. Sketch! 1.5 is impressive. We haven't seen many $25 upgrades that offer so many new and improved features. Most importantly, the program is faster, both in screen redraw and rendering.

The improvements in texture mapping will make Sketch! more useful to package designers, while the new file-format support reaches out to CAD, animation and graphic design professionals. Although Sketch!'s $995 price tag still may scare off some potential users, it is a potent, relatively easy-to-use entry into 3-D design. We look forward with anticipation to Version 2.0.

Alias Research Inc. is at 110 Richmond St. E., Toronto, Ontario M5C 1P1, Canada. Phone (416) 362-9181; fax (416) 362-1276. □

SYSTEM 7 COMPATIBILITY

Sketch! 1.5	
Balloon help	Yes
TrueType	Yes
Publish and subscribe	Yes
Apple events	Yes
32-bit addressing*	Yes

**According to vendor.*

PBTools

From previous page

and off, and to open the PBTools control panel. This scheme is much simpler than its description and, overall, we prefer it to multiple icons crowding the menu bar. A number of users might find it difficult to decipher PBTools' single icon, but we think most users will quickly become accustomed to it, and a help balloon clearly displays the different states of the icon.

Acts of fine-tuning. The PBTools control panel is divided into just four sections: PowerWatch, SafeSleep, PowerControl and PBKeys. PowerWatch contains check boxes for specifying display of the battery indicator in the menu bar and for a feature called Charge-Alert. Normally it takes the PowerBook (Duo models excepted) about half an hour to notice that the charger is plugged in but that no charge is being applied. Charge-Alert notifies you of this condition in about five or six minutes, so the next time you try to "borrow" some power from an outlet in an airport lounge, you'll know fairly soon whether you've hit a live one or it's time to move on.

PowerWatch also contains a chart displaying actual battery voltage over a range of time (three, six, 12, 24, 48 or 96 hours). It obtains this information from its internal log, which is updated every minute and contains information about 16 system states, including voltage, charger mode, CPU speed and screen brightness, as well as the status of the drive, internal modem and serial ports. This log can contain 1,024 entries and be saved at any time as a tab-delimited text file. Armed with this file and a spreadsheet, you should be able to determine just about anything you're likely to need to know about the performance of a battery and how your work habits affect it.

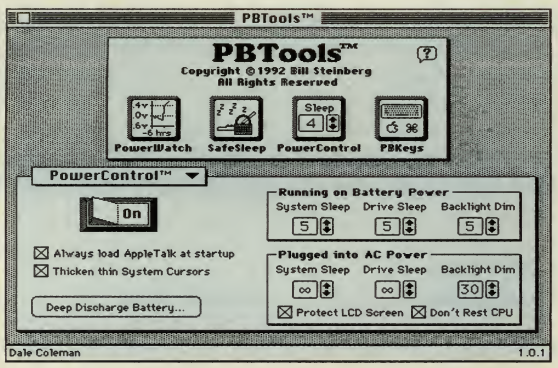
PBTools can track two batteries. The status of the menu icon is determined by the kind of battery (lead acid for the PowerBook 100, nickel cadmium for the rest of the 100 series and nickel hydride for the Duos) and by the status. In some instances, for example, when using a battery near the end of its useful life, you may find that the battery icon indicator is no longer accurate. In this case, you can recalibrate the charge/discharge curve to match the battery.

Acts of conservation. Being able to track the rate at which power is slipping away is fairly useless without a means to slow down the hemorrhaging. For this task you first turn to the PowerControl section. Most PowerBook users know that screen backlighting, spinning hard drives and fully awake systems are the main culprits of battery use, although AppleTalk plays its own role by keeping the serial ports active.

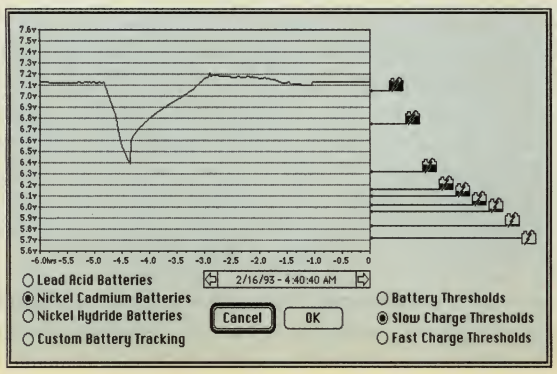
For the "big three," PBTools offers two modes: running on battery power and plugged into AC power. For either mode you can set the number of minutes before system sleep, drive sleep and backlight dimming. The AC power mode has two additional options: check boxes to let you protect the LCD screen by dimming it and to prevent the PowerBook's microprocessor from resting. These two options are rightfully absent from battery power mode for two assumptions: The battery will run out of juice before any of the screen's pixels become fatigued, and Apple's Power Manager rests the CPU in a manner that exacts a minimal performance penalty in return for improved batterylife.

The PowerControl section contains additional goodies, including a check box to toggle thick system cursors for PowerBooks with passive-matrix screens. There's also a check box to toggle loading AppleTalk at

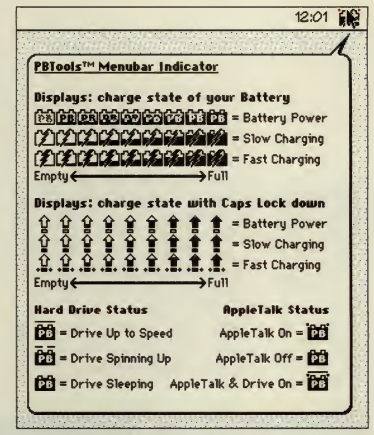
See PBTools, next page



The PowerControl section of PBTools contains settings for battery power and AC power, a check box to toggle loading AppleTalk at start-up, and a button to perform deep battery discharge.



PBTools' calibrate window lets you track your battery charge and, if necessary, modify the curve, regardless of the kind of battery your PowerBook model requires.



PBTools crams a lot of information into a single icon; as a result, the program includes a help balloon that provides a legend for the different settings.

PBTools

From previous page

start-up. If this box is not checked, AppleTalk is loaded only if it was loaded when the system was last shut down. If AppleTalk is active, you can still turn it off from the battery icon's menu, the only penalty being the 250 Kbytes of memory that AppleTalk occupies when it's loaded, which doesn't get released when you turn AppleTalk off.

The Deep Discharge Battery option is for reconditioning nickel-cadmium batteries. When invoked, it powers the entire system for maximum power consumption. It forces the Power Manager not to issue the standard low power alerts and runs the system until it shuts down. This feature should obviate the need for purchasing a separate deep discharge battery reconditioner, although you might get an argument from the engineers who develop them. If you have a Duo, PBTools correctly informs you that this feature is superfluous with Duo batteries, although it still gives you the option if it makes you feel good.

Acts not forgotten. Two additional sections control the remainder of PBTools' features. SafeSleep lets you require a password when you power up or when you wake your PowerBook. Additional options let you specify whether this screen asks for a password or displays up to six lines of owner information such as contact information and an enticing description of reward offered for the return of your PowerBook. SafeSleep also lets you choose between hiding the active PowerBook screen before it's put to sleep or after waking up. SafeSleep is aptly named because it's smart enough not to invoke sleep mode automatically if AppleTalk is in use. As with most PowerBook utilities, PBTools' password-protection is easily bypassed at start-up and shoud not be relied upon to provide true data security.

The PBKeys section lets you define keyboard equivalents for system sleep, drive sleep, drive wake and the locate cursor option. No PowerBook utility package would be complete without dealing with the keyboard, and PBTools addresses its greatest limitations succinctly. The Caps Lock key can be disabled completely or set to engage only when pressed simultaneously with the Shift key. You also can specify a beep when it's engaged. A single check box remaps Control-Arrow key combinations to Home, End, Page Up and Page Down.

Documentation. The documentation was a rush job and, as a result, it contains some errors. It also is disorganized in a few places, and AppleTalk is covered only in the addendum disk file. But it's still a good read and has more useful information than the documentation we have seen for any other product in this category. The balloon help also is much more informative than we've been accustomed to with other products.

Technical support is from Microseeds Publishing Inc. and is available during standard business hours via a toll call, the Microseeds bulletin board system and the major on-line services.

Conclusions. PBTools lacks many of the features found in competing products, notably file synchronization, which is available in Symantec Corp.'s Norton Essentials for PowerBook and has been announced for Version 2.0 of Connectix Corp.'s Connectix PowerBook Utilities (CPU). While synchronization is an important function, we think that there are several very good synchronization utilities that concentrate solely on that problem.

Also, with PBTools you won't find fancy menus or special settings for different environments and multiple users. A few of the features we'd like to see, including keyboard control for screen brightness, are planned for a future release. In the meantime, what you will find is a solid, well-conceived product that we think matches the needs of a large portion of PowerBook users. It excels in battery management, which we think is the primary concern for PowerBook owners.

Inline Design is at 308 Main St., Lakeville, Conn. 06039-1204. Phone (203) 435-4995; fax (203) 435-1091. □

SYSTEM 7 COMPATIBILITY

PBTools 1.0.1	
Balloon help	Yes
TrueType	n/a
Publish and subscribe	n/a
Apple events	Yes
32-bit addressing*	Yes

**According to vendor.*

Great entries.

Great exits.

Kensington introduces two new products for PowerBook® computers.

Kensington NoteBook KeyPad
Want to add full keyboard performance to your PowerBook? Want to enter numbers fast and accurately?

The Kensington NoteBook KeyPad is the answer.

Features include a calculator-style layout, mathematical function keys and an oversized Enter key. All keys are full-size. We even added the "5 Dot Home Key" for touch users.

What's more, 15 additional Function keys help reduce keystrokes and enable VAX/mainframe communication.

The Kensington NoteBook KeyPad has a small footprint, weighs just under 9 oz., plugs into any ADB port and is System 7 compatible.

Kensington NoteBook Traveler™
Now there's a traveling case designed just for PowerBook computers. It's rugged, yet lightweight. Stylish, yet functional. And it comes in three convenient sizes—the full featured *Executive* version, the ever popular *Deluxe* and the streamlined *Compact.*

All versions include an impact-resistant computer compartment with high density padding, numerous zippered compartments and handy utility pouches.

Our new Executive version features three separate compartments for maximum storage, handy elastic straps for securing accessories, an accordion-style compartment for files and an outside pocket for quick access.

NEW EXECUTIVE CASE

Every case has a durable, water-resistant fabric shell, a removable shoulder strap, reinforced webbing and self-repairing zippers. What's more, our unique easy-carry handle combines the strength of rivet-reinforced nylon with the comfort of foam rubber.

For more information, call 800-535-4242. Outside the US, 415-572-2700. For information by fax, call 800-535-4242 and enter 82.

KENSINGTON

NoteBook Traveler is a trademark and Kensington is a registered trademark of Kensington Microware Limited.
Apple, Macintosh and PowerBook are registered trademarks of Apple Computer Inc. © 1992 Kensington Microware Limited. 12/92

PowerPrint/LT runs parallel

GDT Softworks ups the ante in third-party printer support with its $399 LocalTalk-to-parallel print adapter.

By Jeffrey Sullivan

GDT Softworks Inc., maker of the versatile PowerPrint line of QuickDraw printer drivers, has just raised the stakes in third-party printer support. The $399 PowerPrint/LT package is a hardware and software combination that turns non-Macintosh, parallel-interface printers into first-class, networkable LocalTalk printers.

The software includes a set of network-aware printer drivers and a print spooler based on GDT's $149 PowerPrint 2.0. What distinguishes PowerPrint/LT, however, is the hardware: a LocalTalk-to-parallel converter that transforms LocalTalk data streams received over the network into a parallel data stream sent to the printer.

The converter, about the size and shape of a pack of cigarettes, has a status LED, a LocalTalk port and a power plug. (The converter draws more power than LocalTalk cables can provide, so it requires its own power adapter.)

Owners of PowerPrint or PowerPrint/SW can upgrade to PowerPrint/LT for $250 — which is high for an upgrade, but the LT-to-parallel converter's cost is included.

Driver's permit. The basic feature set of PowerPrint/LT drivers is the same as in PowerPrint 2.0, including smooth 90-degree text rotation with outline fonts, gray-scale pattern matching for better-looking gray-scale images (on printers that support them), odd-even page printing, page flipping, inversion, precision bit-map alignment, internal printer font mapping and output scaling from 20 percent to 400 percent.

PowerPrint drivers provide a wide variety of paper sizes but also allow you to create custom paper sizes for your specific needs. Each PowerPrint/LT driver also supports special features of that printer, such as alternate paper trays, color output and bidirectional printing.

PowerPrint/LT will run on any Mac from the Plus up with 1 Mbyte of RAM, although you'll need 2 Mbytes if you want to use print spooling. It requires System 6.0.7 or greater, and System 7 is preferred. PowerPrint/LT drivers are compatible with Adobe Type Manager, TrueType and A/UX.

It's all in the net. The big difference between PowerPrint/LT and the standard PowerPrint is the networking. Each driver in PowerPrint/LT has been upgraded to support network operation, allowing every Mac on the network to share the printer. Copies of the drivers can be freely copied to all Macs on the network, but you'll need multiple LocalTalk-to-parallel converters to connect more than one non-Mac printer to the network.

PrintMaster, the print spooler included with PowerPrint/LT, knows about the network and is intelligent enough to wait for current jobs to end before trying to print its job. Because there's no central spooling area, the PowerPrint/LT drivers use AppleTalk Printer Access Protocol to time-stamp the jobs in their queue, ensuring that jobs are printed in the order submitted. (GDT is considering adding a priority setting to modify the print order of different machines.)

We tested PowerPrint/LT on a small network with three Macs in two LocalTalk zones. Two printers were tested separately: Hewlett-Packard Co.'s LaserJet IIP and Texas Instruments Inc.'s MicroLaser. The software worked flawlessly, providing shared network access to each printer, including over a connection established with AppleTalk Remote Access (although printing was considerably slower). Even with exceptional network traffic, we did not experience any network "dropouts" or lost print jobs.

Plug and play. Installation of the LocalTalk-to-parallel converter is as simple as plugging it into the Centronics-style parallel interface of the printer, then plugging in the power cord, any LocalTalk-compatible network connector, and you're on the net.

The software for PowerPrint/LT is installed with an Apple Installer script. The base installation includes the driver for the printer of your choice, along with the print spooler software and a HyperCard reference stack. The driver and spooler software are installed in the appropriate folders under System 7.

The documentation that comes with PowerPrint/LT is thorough and accessible, explaining everything from what a printer driver is to how to use the special features for each driver type. GDT's technical support also was very responsive and helpful.

The final step in the installation is to configure the printer for parallel communication. The Printer Reference Stack includes driver compatibility notes and configuration instructions for all of the printers supported by PowerPrint/LT.

Third-party line. And that's no small number. PowerPrint/LT supports more than 800 different printers from more than 130 manufacturers, including big names such as HP, IBM Corp. and Epson America Inc., as well as smaller names such as Genicom Corp. and Siemens Nixdorf Printing Systems.

Support for many of these printers is provided by having the printer emulate one of the printers whose drivers are supplied with PowerPrint/LT. PowerPrint/LT supports laser printers, of course, but it also supports inkjet, dot-matrix, daisywheel, thermal and color printers.

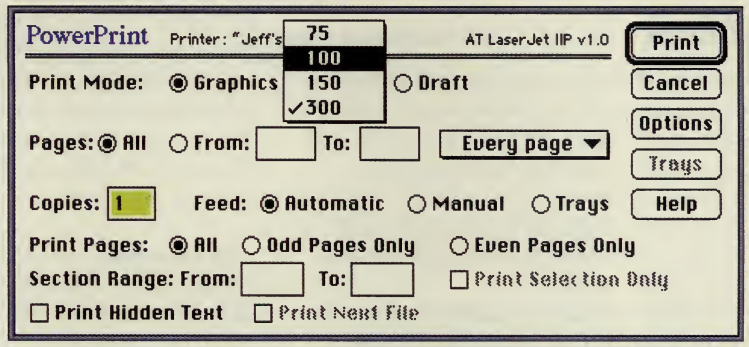
Conclusions. The only major concern we have about PowerPrint/LT is its price. At $399, it seems an unlikely solution for those whose sole intention is to buy a less-expensive IBM PC or compatible printer and bring it into the Mac world, especially given the current downturn in printer prices. If you already have a number of older parallel printers sitting unused in closets, however, the PowerPrint/LT can make them useful again.

One other caveat to be aware of is that PowerPrint drivers require at least 1.5 Mbytes of printer memory to perform properly with laser printers.

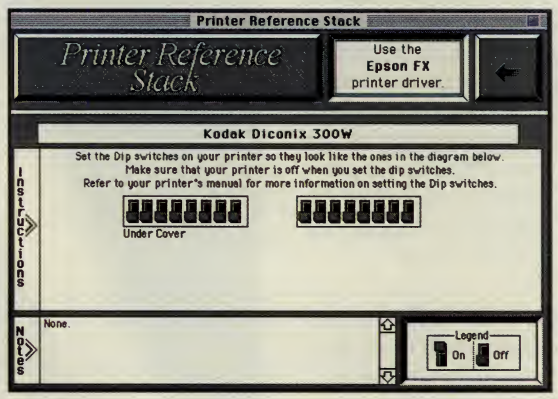
We found PowerPrint/LT to be a very good product, performing its useful function with style, ease and flexibility. The print spooler is welcome (in fact, practically a necessity for networked printers), and the standard set of driver features is both powerful and easy to use.

Support for special printer features in the PowerPrint/LT drivers is also impressive, allowing users to get the most out of their particular printer. With support for more than 800 printers from hundreds of manufacturers, GDT's PowerPrint/LT is bringing the world of network printing to a whole new class of users.

GDT Softworks Inc. is at 4664 Lougheed Highway, Suite 188, Burnaby, British Columbia V5C 6B7, Canada. Phone (604) 291-9121 or (800) 663-6222; fax (604) 291-9689. □



The print dialogs for PowerPrint/LT drivers include user-selectable resolution, paper source selection and odd/even page printing. The dialog shown is for the HP LaserJet IIP.



The Printer Reference Stack includes the required information for setting up any supported printer to work with the system. Here, an Eastman Kodak Diconix 300W should use an Epson FX printer driver and configure its DIP switches as shown.

score card

PowerPrint/LT

GDT Softworks Inc.
Overall value ◆◆◆◆ **Version tested: 1.0** **List price: $399***

PowerPrint/LT provides an elegant and powerful means of turning non-Macintosh, parallel-interface printers into networked LocalTalk printers. A simple-to-install adapter plugs into the printer's Centronics parallel interface and accepts a LocalTalk connector. GDT includes network drivers that support more than 800 printers, including the most popular brands from the DOS world. The drivers feature print spooling and support for special printer features. Given the current low prices in the Mac printer market, the PowerPrint/LT might be pricey for people looking to purchase new printers, but it can be a boon for businesses with an old printer lying unused in a back room.

Performance	◆◆◆◆	**Compatibility**	◆◆◆◆◆
Features	◆◆◆◆	**Documentation/support**	◆◆◆◆
Configuration	◆◆◆◆◆		

** Upgrade for users of PowerPrint and PowerPrint/SW, $250.*

SYSTEM 7 COMPATIBILITY

PowerPrint/LT 1.0	
Balloon help	**Yes**
TrueType	**Yes**
Publish and subscribe	**n/a**
Apple events	**n/a**
32-bit addressing*	**Yes**

**According to vendor.*

UserLand charts new Frontier

Version 2.0 more accessible, powerful

By Linda Custer

UserLand Software Inc. has released a major upgrade to both the system-level scripting and interapplication communications capabilities of its System 7 control center, Frontier.

When we reviewed the first version of Frontier (see MacWEEK, March 2, 1992), we described it as a system-level scripting language that could automate Finder tasks and manage messages between compliant applications. We concluded that it was most useful to network managers and other users who needed to track and manage files; to developers and users who wanted easy access to Apple events; and to those who wanted to replicate the functionality of batch languages available in other operating systems.

With the release of Frontier 2.0, the potential audience for this $249 script tool has widened. Many of the changes bring Frontier's power closer to users who are not programming experts. The product now ships with a runtime version so the full product is not required to take advantage of many scripts produced by others and available from various on-line sources. Frontier now can install menus in the Finder and can create "droplets," Finder icons that can perform actions on any file that is dragged on top of them. Both of these improvements make scripts that have been developed by more experienced users available to anyone who knows how to click and drag.

Frontier hasn't left its core audience behind, though. Many internal changes to the product make it more robust and more capable of interacting with its environment.

In another notable achievement, Frontier 2.0 is available free to all registered users of Version 1.0.

What's new. The basic user interface of Frontier has not changed. Several small bugs have been fixed, but the design of the product is intact. The outline, word processing, menu-editor and database tools still form the foundation of the product; scripting in UserTalk is still entered into outline windows; and agents are still available to run scripts unattended at specified intervals. Best of all, Version 2.0 is backward-compatible with Version 1.0. All previous scripts and information in Version 1.0 can be used directly. Anyone familiar with Version 1.0 can convert to Version 2.0 without missing a beat.

A runtime version of Frontier now is available for users who want to be able to run Frontier scripts but who do not want to program them. The runtime application is available as a shareware product. Frontier Runtime does not include the outliner, word processor and other user-interface trimmings of the full version, but it can run almost all Frontier scripts that don't directly access the Frontier user interface. The runtime module will make Frontier especially useful for customizing medium-size networks where one or two people can create special Frontier scripts useful for their environment and then share the scripts across the network.

Two changes to Frontier are most notable. First, Frontier now ships with a system extension and an application that allow Frontier to post and control a menu in the Finder. A menu full of useful utilities can be installed in the Finder immediately, and the menu can be edited to launch any Frontier script. (Those familiar with Aladdin Systems Inc.'s Magic Menu for StuffIt Deluxe 3.0 already have seen an example of an added Finder menu, although the StuffIt Deluxe menu is not editable.)

Second, with droplets, Frontier developers now can create small applications whose sole purpose is to act on files that are dragged on top of them from the desktop. Droplets can, for instance, immediately create aliases or alter the creation or modification dates of any file. They can launch any Frontier script, but they also pass along the path name of the folder or file that is dragged over them so the script can act only on those objects.

Both of these changes make Frontier much more accessible to casual users. Their only drawback is that Frontier or Frontier Runtime must be present to execute the scripts, requiring about 512 Kbytes of RAM. This could greatly reduce the usefulness of these tools for older Macs and PowerBooks but will probably not be a problem for newer machines. A Frontier compiler that could produce stand-alone code from droplets would be a welcome addition to the product line.

Change in the inside. While the external changes to Frontier may be important, they pale when compared with the internal changes. The core of Frontier has been improved significantly. It executes scripts more quickly without taking up more memory than Version 1.0. Many new scripting verbs have been added to simplify and internationalize programming. As an example, a new File.getSpecialFolderPath command opens special folders like the Preferences and Control Panels folders regardless of which language is in use.

Many other verbs have been made more robust so planning for errors is less time-consuming and error-prone. The Fileloop command now can operate on more nested folder levels and can automatically operate only on files, while ignoring folders.

Frontier now can operate across networks to share information in several of its object databases residing on other computers. Frontier 1.0 could execute scripts that could operate on files on a network, but now a new suite of programs makes it easy to share Frontier scripts, menus, databases and other objects as well.

Frontier's on-line documentation is available in a separate program called DocServer. A Command-click on a scripting verb automatically launches DocServer and displays the verb's syntax, parameters and examples of how it is used.

Get with the program. A new Try/else language construct allows scriptors to easily recover from errors or code around places where files may not be where they are expected. A new "with" language construct, similar to that available in Pascal, can make scripts much easier to understand once they have been written.

Frontier 2.0 now accepts externally compiled routines. CODE resources that are developed with popular C and Pascal compilers can be installed in and run from Frontier, so now Frontier can be extended limitlessly. The familiar external commands (XCMDs) used to extend HyperCard can be placed directly into Frontier as long as they are compatible with HyperCard 1.0. A new kind of CODE resource called a UCMD, designed by UserLand specifically to work with Frontier, has no such limitations. XCMDs have the advantage that many useful XCMDs already are available, while UCMDs are especially adept at handling Apple-event programming.

The Frontier Software Developers' Toolkit (SDK) has been upgraded to Version 2.0 as well. The original version showed users how to develop Frontier-aware applications and use Apple events effectively. The SDK upgrade adds example code and support for writing XCMDs, UCMDs and droplets and for sharing outlines between applications. It is most closely geared to developers using Symantec Corp.'s Think C but is instructive for those using other compiler brands and languages as well.

A new Extras subscription service at $149 a year provides quarterly disks that include sample Frontier scripts and C code and also contains install files to add Frontier capability to popular Apple-event-aware applications. The Extras will appeal to both programmers and end users, although programmers probably will benefit from the service most.

Conclusions. The Version 2.0 upgrade to Frontier is an ambitious one. Frontier is a complex program with many layers; this upgrade is a largely successful attempt to improve its usefulness while decreasing complexity. System-level scripting and interapplication communications are not easy to implement. Frontier goes far in allowing users to access many of the rich features that Apple buried deep inside System 7.

As before, Frontier's product support is excellent. The manual has not been upgraded with this release, but the on-line documentation is completely up-to-date and easier to navigate. UserLand maintains a presence by phone, fax, the Internet and many of the public electronic bulletin boards and services. People at the company have been both enthusiastic and helpful toward their users.

On the horizon, Apple is readying AppleScript, a systemwide scripting language that someday will perform many of the tasks of Frontier, most likely with a HyperCard front end. While it may offer Frontier substantial competition when it ships next fall, Frontier is here now. In addition, UserLand has improved Frontier significantly in its second release. For those willing to invest in learning its power, Frontier 2.0 delivers as promised and has an interface that likely will be preferred by many users to whatever Apple may have waiting in the wings.

UserLand Software Inc. is at 400 Seaport Court, Redwood City, Calif. 94063. Phone (415) 369-6600, fax (415) 369-6618. □

score card

Frontier

UserLand Software Inc.
Version tested: 2.0
List price: $249*
Overall value ◆◆◆◆

Frontier is a system-level scripting program that can automate almost all Finder tasks and send and receive Apple event messages from programs that support interapplication communications. In its second version, new tools make Frontier both more accessible to novices and more powerful for experts. Enhanced support for simultaneous Frontier applications running across networks, script launching from a resident Finder menu, externally compiled code resources and new droplet mini-applications are provided. A shareware runtime version can operate most scripts developed in the full version, but it does not allow script development or editing, which should significantly improve Frontier's utility and market share.

Performance	◆◆◆◆◆
Features	◆◆◆◆
Ease of use	◆◆◆◆
Documentation/support	◆◆◆◆◆

** Upgrade from Frontier 1.0 is free.*

SYSTEM 7 COMPATIBILITY

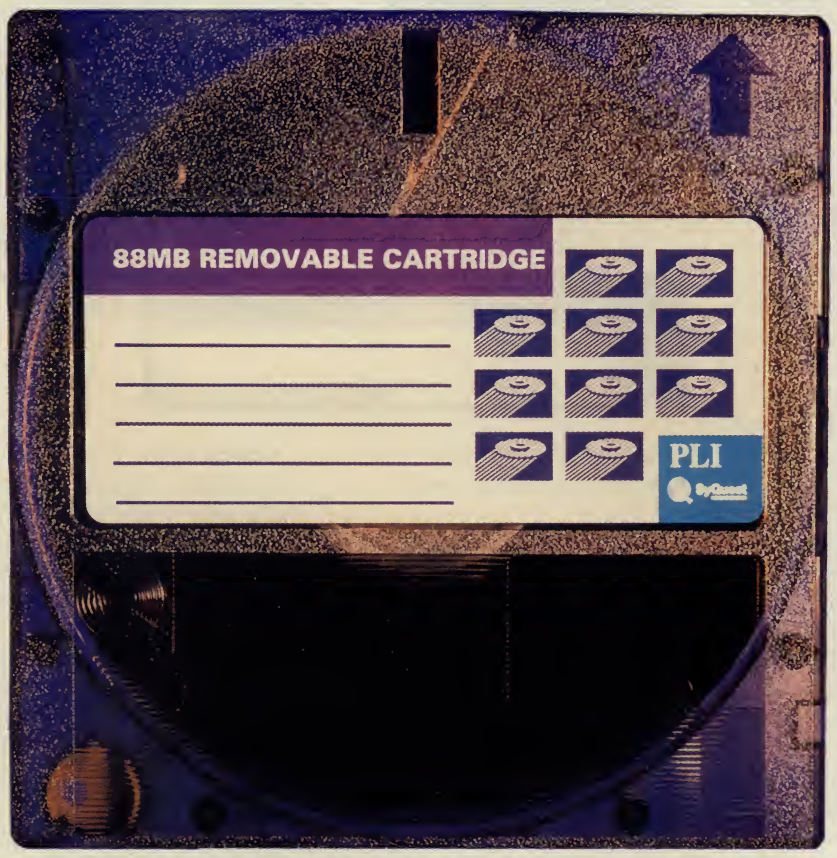
Frontier 2.0

Balloon help	No
TrueType	Yes
Publish and subscribe	No
Apple events	Yes
32-bit addressing*	Yes

**According to vendor.*

NEW

WE SET THE STANDARD. NOW WE'RE BREAKING THE RULES.



READ/WRITE 88MB & 44MB CARTRIDGES ON ONE DRIVE.

Because the cartridges are removable, you can take your data from place to place, or lock it up for safekeeping. And since the PLI Infinity 88/RW44 Turbo is the standard for service bureaus throughout the world, the cartridges are a fast, convenient way to get those big DTP jobs done. For added convenience, **THE NEW PLI INFINITY 88/RW44 TURBO ALSO READS AND WRITES THE POPULAR 44MB CARTRIDGES!**

The PLI Infinity 88/RW44 Turbo uses time-proven Winchester technology. That's the same technology used by your hard disk drives! For years, it has **SET THE STANDARDS OF RELIABILITY AND PERFORMANCE.** But now you can have that trusted technology and the benefits of removable technology.

That's because it is a hard drive. You get fast **20MS ACCESS TIMES** and world-class data transfer rates. In fact, these drives are faster than any other removable cartridge drives on the market. When you need speed, think PLI Infinity 88/RW44 Turbo.

PLI, maker of the Infinity 88/RW44 Turbo, is **THE LEADER IN REMOVABLE STORAGE.** PLI has offered products of the highest quality and offered the best in service and support since the earliest days of the personal computers. For your convenience, PLI drives are **AVAILABLE AS INTERNAL OR EXTERNAL UNITS.** All products are trademarks or registered trademarks of their respective companies.

THE INFINITY 88/RW44 TURBO... BREAKING THE RULES, TWO DRIVES IN ONE.

800. 288. 8754
47421 Bayside Parkway • Fremont, CA 94538
510. 657. 2211 • Fax 510. 683. 9713

FEATURING SyQuest REMOVABLE TECHNOLOGY

PLI

MWK AD-65

Mac mapping software grows to meet new needs

Business users are applying mapping technology in marketing and sales as well as in traditional geographic analysis tasks.

By Mitzi Waltz

Mapping software isn't just for geographers. Salespeople plotting travel strategies, marketing whizzes tying demographics to addresses, geologists examining oil deposits, educators and many others are part of the desktop mapping work force.

Of course, these products come at a hefty price: Although the base applications generally cost less than $1,000, adding the extra utilities or data sets needed to get them to do what you want can push total costs into the multiple thousands.

The key to getting the most out of any mapping software is the data you put into it and the kind of graphics you need to produce.

Business mapping. Four Mac mapping programs — GeoQuery Corp.'s GeoQuery 3.02, Strategic Mapping Inc.'s Atlas Pro and Atlas MapMaker, and Graphsoft Inc.'s Azimuth 2.1 — are specifically oriented toward business users.

GeoQuery links maps with data from existing corporate or sales databases, spreadsheets and other business programs, such as Contract Software International's ACT! contact-management program.

Atlas Pro includes street-level data files and has an internal database, while Atlas MapMaker can pull information from users' spreadsheets or databases. Additional data sets, including ZIP-code lists and detailed Census information, are available from a variety of third-party sources.

Both Atlas programs require geographic data files, such as Graphsoft's add-on CD for Azimuth, for use as a starting point. Azimuth, of course, has many of its own adherents.

In Austin, Texas, Atlas Pro is in use at the dual Spanish-language radio stations KKLB and KELG as a sales tool. "We provide media research for the radio stations to show advertisers about the market," said Joe Garcia, general manager. "It works well for us because it doesn't require a huge learning curve."

The data, also provided by Strategic Mapping, is divided by ZIP code, county, ethnicity, income level and other variables, then mapped to provide potential sponsors with jazzy-looking visuals that Garcia said he hopes will create a sale.

Glenn Mosser, president of Mosser Design Inc. in Washington, D.C., said Azimuth is useful for illustrations in both commercial magazine work and in-house corporate publications.

"It's very simple to work with," Mosser said. "We bring [a map view] into Aldus FreeHand, colorize it and go from there. We use them primarily as graphics to let people know what a story is talking about in case they're not geographically literate."

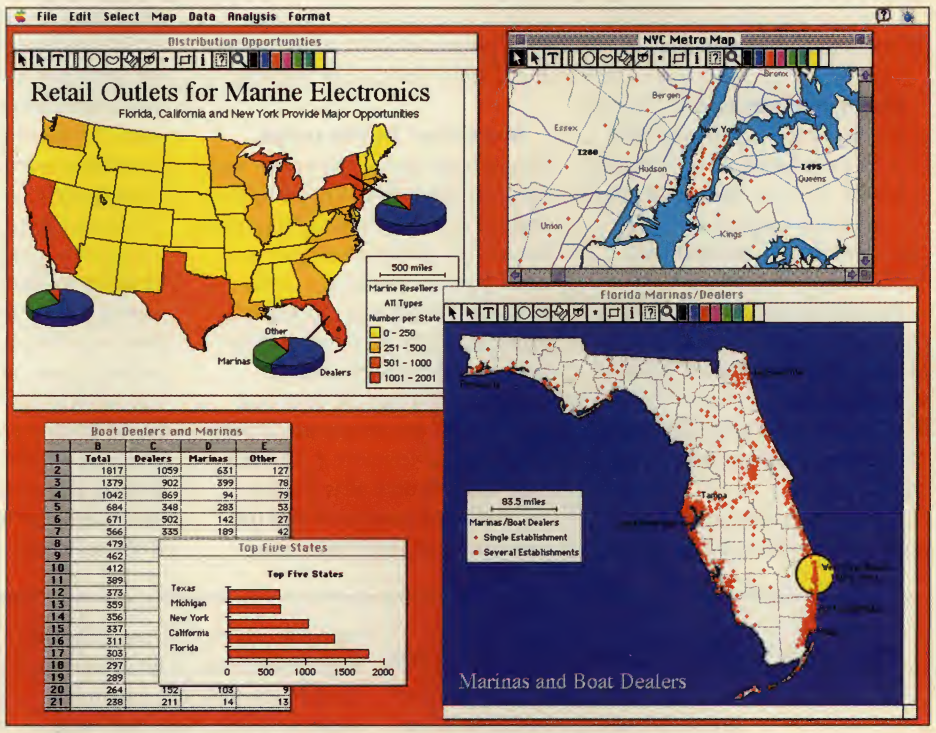
Contour mapping and beyond. Geographers, geologists, surveyors, engineers and many others need to re-create details of the earth's surface and examine the features that lie above and below it. These users require geographical mapping programs that also can show contour modeling.

Products in this category include Computer Systemics' GeoView 2.4, COMPUneering Inc.'s LANDesign and LANDview, RockWare Inc.'s MacGRIDZO 3.0, Kansas Geological Survey's Surface III, ComGrafix Inc.'s MapGrafix Mapping System, ThinkSpace Inc.'s Map II, SIAL Géoscience Inc.'s MacGeos II, and TerraLogics Inc.'s TerraView.

LANDesign is meant for land surveying, deed plotting and other tasks using coordinate geometry. Coordinate-geometry mapping programs turn mathematical descriptions, such as latitude and longitude of a structure's corners, into geometric shapes on the screen.

LANDview, a contour-mapping application that creates 3-D terrain models and surface renderings showing geological formations, can export 3-D files in DXF (Drawing Interchange File) format for further embellishment in CAD or other programs. According to the vendor, both programs soon will be integrated into a single package.

Eric Easter, owner of Planning Consultants in Santa Cruz, Calif., said he would welcome that move. He relies on LANDesign in his civil engineering and land surveying business and uses LANDview occasionally as well.



	B	C	D	E
1	Total	Dealers	Marinas	Other
2	1817	1059	631	127
3	1379	902	399	78
4	1042	869	94	79
5	684	348	283	53
6	671	502	142	27
7	566	335	189	42
8	479			
9	462			
10	412			
11	389			
12	373			
13	359			
14	356			
15	337			
16	311			
17	303			
18	297			
19	289			
20	264	152	103	9
21	238	211	14	13

GeoQuery can import data from other programs for use within a digital map. Here, a Microsoft Excel spreadsheet provides map highlights on retail outlets that sell marine electronics.

"I use LANDesign in the field with a PowerBook 100," Easter said. "I directly enter my survey notes into the program. It's the most capable of the COGO (coordinate geometry) surveying programs I've looked at, and I've been using some type of COGO program for 15 years.

"There's no question that I can produce work a lot more efficiently with this program, even before I added the PowerBook. It has all the features that a COGO program should have, [plus] this one is one of the friendliest to use that I've seen."

Statistical geography. Combining geography with statistical data is common in academic projects and government research. According to users, one of the more popular programs in this area is

See Mapping, next page

Case Study

MacGrafix Mapping System helps map manager digitize St. Louis

Mac software helps trim project costs from $3 million to $350,000.

By Mitzi Waltz

Tony Meyers, manager of mapping and graphic design for the city of St. Louis, said the MapGrafix Mapping System from ComGrafix Inc. allowed him to digitize the entire city down to the parcel, or building, level for only $350,000 — quite a feat, especially since a consultant had told the city it would cost at least $3 million.

Why digitize at all? Digital maps can be quickly changed, endlessly reproduced and linked with databases to visually display such things as traffic flow, population shifts and zoning regulations. For city planners in particular, maps are a central part of everyday duties, and digital maps make their jobs faster and easier.

"For me, MapGrafix is the only high-end package that lets you go down to that level," said Meyers, who tested several other mapping applications, including Strategic Mapping Inc.'s Atlas Pro and MapInfo Corp.'s MapInfo, before undertaking the project.

"We were quite fortunate to have a database of the entire city already running on a mainframe," Meyers said, so little additional data-gathering was required.

Linking in information from various city records, such as zoning, tax, ownership and sewer records, Meyers was able to add detail as needed.

See St. Louis, next page

St. Louis

From previous page

City staffers used the program to assign a unique number to each of the 134,000 individual parcels. With these links, Meyers said, they now can develop thematic mapping for planning and other purposes.

Easier and cheaper. The rest of the city's map makers use IBM PCs running AutoCAD, while map artists for the surrounding county use proprietary Intergraph mapping terminals to generate their digital maps.

But Meyers said he uses a Mac Quadra 900, eight Mac IIci and 10 Mac IIsi models, assorted Classics and SE/30s, and a couple of PowerBook 140s to achieve equal or even superior results, along with saving money.

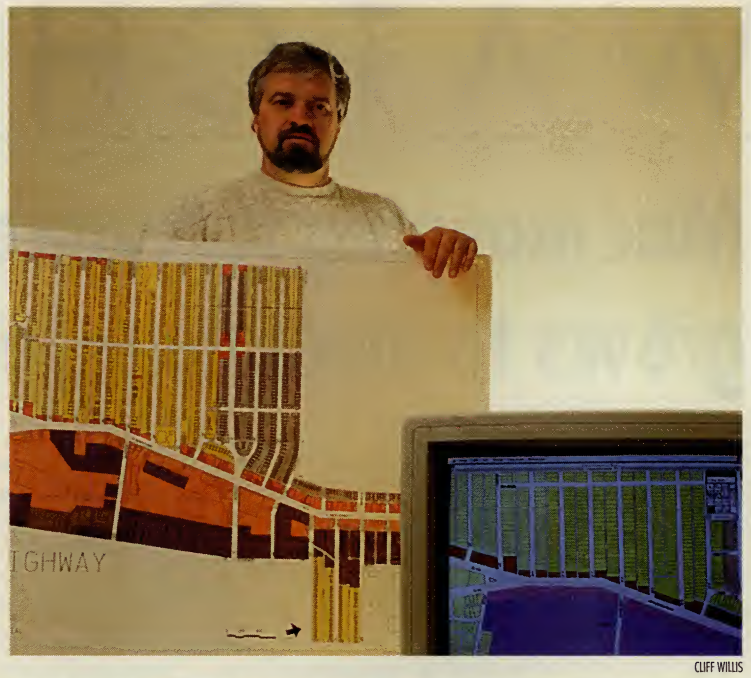
"[Intergraph terminals] are very expensive, and there's nothing like MapGrafix on the PC side," Meyers said, adding that file sharing on the Mac is simple. In fact, he said the maps his staff has created are so accurate that when they brought in additional sewer-line data from one county Intergraph file, the new lines generated by MapGrafix met the already-drawn ones perfectly.

More than better maps. Simply updating the city's maps is an important enough task to justify the expense of Meyers' digitizing project, he said, but putting them in closer touch with geographical, governmental and other data can help city agencies such as the refuse-pickup squad and the planning board.

Meyers said that the computer maps enable the city planners to try out "what-if" scenarios, which can be played out until all issues are resolved. For example, one of the city's most important upcoming projects will involve teaching its emergency-preparedness teams to use digital maps with city databases in the case of a train derailment involving hazardous materials — not a far-fetched occurrence in a city that is mid-America's railroad hub.

Disaster planners will test their ability to call up the names of all homeowners in a circled "danger zone" on the map, enabling them to warn or evacuate residents more quickly.

The last few pixels of Meyers' map set had just been added when he spoke to MacWEEK, but they were already drawing attention from other departments. "They're coming to me more and more," he said, adding that he's now gearing up for his next project: adding four PowerBook 180s equipped with cellular phones to bring in data direct from the field via Apple Remote Access. □



CLIFF WILLIS

Tony Meyers, manager of mapping and graphic design for the city of St. Louis, used MapGrafix to convert the city's mainframe to digital maps.

Mapping

From previous page

MapInfo Corp.'s MapInfo for Macintosh 2.0, which is available in versions for Windows, DOS and the Mac, as well as Sun Microsystems Inc.'s, Hewlett-Packard Co.'s and Intergraph Corp.'s computers.

MapInfo pulls data directly from popular database and spreadsheet programs via SQL calls, without time-consuming importing. Its internal relational-database engine lets users carry out complex operations and display them as maps or graphs and also supports AppleScript.

MapInfo sells custom data sets of its own, such as StreetInfo 2.0, derived from the 1990 Census. StreetInfo lets map makers add five layers of information to their base maps: streets and railroads, city and town boundaries, point landmarks (such as schools), area landmarks (such as military bases) and waterways. At Southern California Edison in Long Beach, Roberto Alvarez, senior drafting technician, uses MapInfo to combine maps with ZIP-code, state, county and personnel data for planning new service locations and other tasks. "We found that [the MapInfo] packages have more capabilities than the other packages for a lower price," he said.

Not for everyone. However, it's important to use any mapping software only for the tasks it does well, Alvarez said. For example, he said, although MapInfo has some drawing tools, a CAD program would be a better choice for drafting your own maps because of the precision required in the final map.

In addition, he said, MapInfo has some internal limitations. "MapInfo can't make custom symbols, like a Southern Edison logo for our substations, and put them on maps," Alvarez said. "And because this product was ported over from the DOS environment, the Mac version looks for directories instead of folders, so you have to be careful about naming conventions."

Sales mapping. Tactician Geographic Information System 3.0, a three-level set of products from Tactics International Inc., is geared toward helping salespeople analyze demographics and other marketing-related statistics by geographical area.

This product includes Tactician 3.0, an executive information system and desktop mapping tool that features state, highway and city information; Tactician with Buttons, which adds a development and scripting environment and county boundary data; and Heavy Duty Tactician.

Heavy Duty Tactician provides a variety of different specialized programs, including Selling Machine, a set of marketing tools; Micro-Marketing Machine, a collection of retail marketing tools; and ZIP-code maps, more-detailed marketing data and, the product's most unique feature, the Tactician Data Warehouse utility for in-house CD-ROM database publishers.

Tactician features remote SQL query capability, allowing users to pull in information from many databases on many platforms.

Statisticians even can make their numbers dance with MacChoro II with Map Animation, a statistical mapping and animation program from Image Mapping Systems. MacChoro is particularly useful for time-series animations, such as displays of population movements or socio-economic trends.

Future boundaries. Among the trends already becoming evident for the future of Mac mapping is, predictably, increased reliance on portable computers.

Like Planning Consultants' Easter, field surveyors are likely to be among the first users of specialty personal digital assistants, and with wireless networks or phone links they could send their data in to the map crew almost instantaneously.

> It's important to use any mapping software only for the tasks it does well.

Some salespeople already are plotting their routes on PowerBooks with Strategic Mapping's Local Expert, a travel-mapping package that features regional maps, a choice of city maps, and information on hotels and business services and is already optimized for such use.

More data sets and base maps also are becoming available as government agencies open up their files to the public. Coupled with more robust software and faster Macs, these trends will make visualizing information from economics, geography, anthropology and other fields that much easier. □

See Product Info, next page

Map vendors offering map database files on CD-ROM

CDs are an obvious choice for storing large map files, and vendors such as Cartesia Software, Highlighted Data Inc. and Graphsoft Inc. are beginning to provide their products in that format.

Cartesia's four-volume MapArt collection is a case in point. Volumes 2-4 are sets of Encapsulated PostScript and PICT files on disk, while its more-extensive Vol. 1 comes on disk or CD.

Cartesia also offers World Data Bank, a set of regional maps of the world's 12 regions, featuring coastlines, political borders and more but no location names.

Jimmie Welsh, computer graphics operator at Federal Express Corp.'s Memphis, Tenn., headquarters, uses World Data Bank to create maps for corporate videos. "We need highly detailed worldwide maps since FedEx is a global company," he said. "I was impressed by the level of detail and the consistency with which these were done."

World Data Bank maps are in Adobe Illustrator format, which Welsh said was essential for the accuracy and customizability he wanted.

NEVIN BERGER

Electronic Map Cabinet 2.0 from Highlighted Data is a CD with information down to the street-corner level. Users can select city, scale and features to play up in their final maps.

Graphsoft's Azimuth US Geographic Data CD also provides detailed data on waterways, roads, national parks, towns, counties and other administrative boundaries for use in Azimuth 2.1 or other programs.

— By Mitzi Waltz

Product Info

CARTESIA SOFTWARE
MapArt Vol. 1-4: $49 to $179 per volume; **MapArt World Data Bank:** $49 per region, or $299 for all 12
5 S. Main St., P.O. Box 757, Lambertville, N.J. 08530
Phone (609) 397-1611 or (800) 334-4291; fax (609) 397-5724

COMGRAFIX INC.
MapGrafix Mapping System — MapGrafix: $4,995; **MapLink:** $995; **MapView:** $495; **MapGrafix Display (runtime version):** $995
620 E St., Clearwater, Fla. 34616
Phone (813) 443-6807 or (813) 443-7585; fax (813) 443-7585

COMPUNEERING INC.
LANDesign: $595; **Data Collector Module:** $325; **Export Module:** $250; **LANDview:** $195 to $995; **Volumetrics Module:** $300; **Import/Export Module:** $300
113 McCabe Crescent, Thornhill, Ontario L4J 2S6, Canada
Phone (416) 738-4601; fax (416) 738-5207

COMPUTER SYSTEMICS
GeoView 3.0: $595
806 Hill Wood Drive, Austin, Texas 78745
Phone (512) 441-4583; fax (512) 443-6211

GEOQUERY CORP.
GeoQuery 3.02: $395
387 Shuman Blvd., Suite 385 E, Naperville, Ill. 60563-8453
Phone (708) 357-0535 or (800) 541-0181; fax (708) 717-4254

GRAPHSOFT INC.
Azimuth 2.1: $395; **Azimuth US Geographic Data CD-ROM:** $495
8370 Court Ave., Suite 202, Ellicot City, Md. 21043
Phone (410) 461-9488; fax (410) 461-9345

HIGHLIGHTED DATA INC.
Electronic Map Cabinet 2.0: $199.95
4350 N. Fairfax Drive, Suite 450, Arlington, Va. 22203
Phone (703) 516-9211; fax (703) 516-9216

IMAGE MAPPING SYSTEMS
MacChoro II with Map Animation: $295
516 S. 51st St., Omaha, Neb. 68106
Phone (402) 553-2246

KANSAS GEOLOGICAL SURVEY
Surface III: $249 to $399
1930 Constant Ave., Lawrence, Kan. 66047
Phone (913) 864-5674 or (800) 827-4844; fax (913) 864-5317

MAPINFO CORP.
MapInfo for Macintosh: $995; **MapBasic Development Environment:** $795; **StreetInfo 2.0:** $225 per county, $995 per state (CD-ROM)
200 Broadway, Troy, N.Y. 12180
Phone (518) 274-6000 or (800) 327-8627; fax (518) 274-0510

ROCKWARE INC.
MacGRIDZO 3.0: $499
4251 Kipling St., Suite 595, Wheat Ridge, Colo. 80033
Phone (303) 423-5645; fax (303) 423-6171

SIAL GÉOSCIENCE INC.
MacGeos II: $900; MacGeos II with Terneryplot: $1,150
1400 Gouin Blvd. W., Montreal, Quebec H3M 1B1, Canada
Phone (514) 339-2999; fax (514) 339-2997

STRATEGIC MAPPING INC.
Atlas Pro: $795; **Atlas MapMaker:** $495; **Local Expert:** $99 for basic set, additional city maps $25 each; **Local Expert CD:** $99; **Atlas Software, Eurostat Edition:** $475 to $3,095
3135 Kifer Road, Santa Clara, Calif. 95015
Phone (408) 970-9600; fax (408) 970-9999

TACTICS INTERNATIONAL INC.
Tactician Geographic Information System — Tactician 3.0: $995; **Tactician with Buttons:** $2,495; **Heavy Duty Tactician:** $9,995
16 Haverhill St., Andover, Mass. 01810
Phone (508) 475-4475 or (800) 927-7666; fax (508) 475-2136

TERRALOGICS INC.
TerraView 3.0: $3,495; **Mac interface:** $595
131 Daniel Webster Highway S., Suite 348, Nashua, N.H. 03060
Phone (603) 889-1800; fax (603) 880-2022

THINKSPACE INC.
Map II: $345
316 Cheapside St., London, Ontario N6A 2A6, Canada
Phone (519) 661-4006; fax (519) 661-3750

When It Comes To CD-ROM, We're for Multiple Choice.

Chinon's Complete Family Of Quality CD-ROM Drives.

Chinon has just the CD-ROM drive you need—from basic to state-of-the-art.

The 431 series offer unbeatable price/performance in an entry-level drive.

The 435 series drives are fully MPC and Quicktime compatible, with a 64KB data buffer and single-session Photo CD capability. They are multimedia performers that won't bust your budget.

The new 355 series of 3½" drives are XA compatible, and will read Sony DataDiscman discs, audio 3½" CD's, or any new software written in the 3½" format.

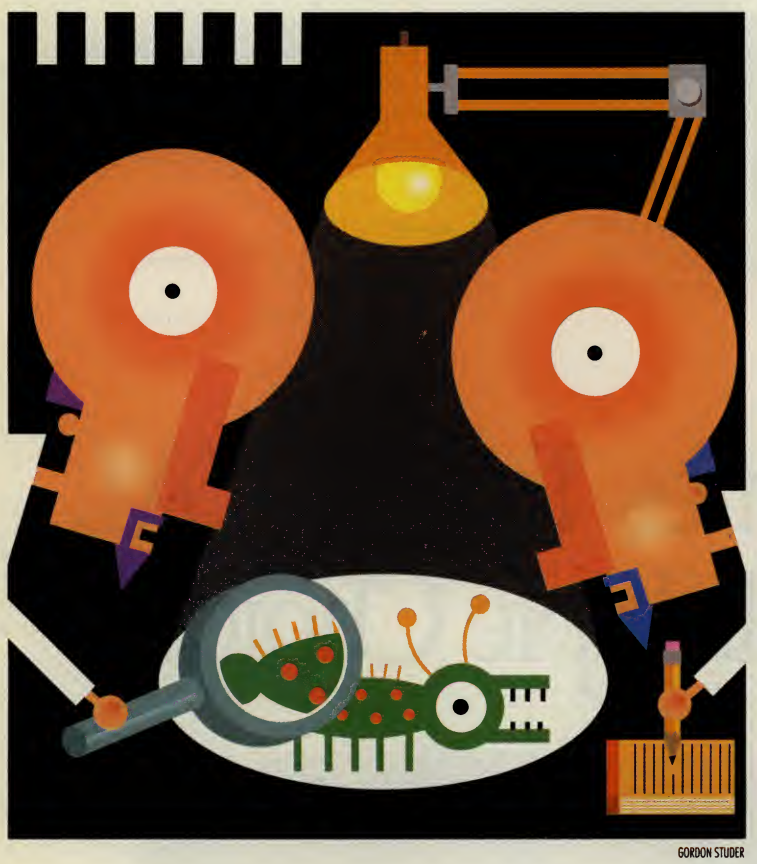
Our exciting new 535 series drives earn their place at the top of the line. They offer dual speed performance, are multisession Photo CD and XA compatible, and have a huge 256K data buffer. Double doors and a sealed mechanism protect your data from dust.

All Chinon drives have a reputation for rugged construction and rock-solid reliability. And Chinon quality always comes at a very competitive price. So call today for the reseller nearest you—and make the right multiple choice.

CHINON
The Drive to Succeed

Chinon America, Inc., 615 Hawaii Avenue, Torrance, CA 90503 Toll-free **(800) 441-0222** In California **(310) 533-0274**

Sony and DataDiscman are trademarks of Sony Corporation.



GORDON STUDER

MacInTouch RIC FORD

Knowing bug's tricks helps keep it in check

We pay another visit to the HFS bug, analyzing its behavior in more detail to help predict when it may bite. We also look at a few potential solutions.

BUGS & TIPS

Partitioning parameters. Feedback from readers and programmers plus additional testing have provided more information about managing the bug in the Macintosh's hierarchical file system that I described here two weeks ago.

Disk Bug Checker, the freeware utility from Central Point Software Inc., has proven to be a valuable aid for analyzing susceptibility to the bug. (Note that when changing partition sizes, you should quit and reopen the program between checks because it caches data in memory.)

It is clear from testing that keeping partitions small does not, by itself, guarantee freedom from the bug.

Formatting with Hard Disk ToolKit from FWB Inc., the problem occurs even with a 32-Mbyte volume if the "allocation block size" parameter is set to 1.5 Kbytes. Choosing smaller allocation blocks avoids the problem at this volume size. Conversely, choosing a larger allocation block size is the only way to alleviate the problem on a 90-Mbyte volume with Hard Disk ToolKit.

At this volume size, the problem occurred both with Hard Disk ToolKit and with Silverlining from La Cie Ltd., while Drive7 from Casa Blanca Works Inc. and Alliance Power Tools from APS Technologies Inc. created safe extent files.

New factor. Programmer Bill Steinberg, author of popular utilities such as Switch-A-Roo and PBTools, pointed out that the Finder's Erase Disk command is another important factor.

Erase Disk, just like a formatting program, initializes the catalog and extent file, and it can dramatically alter the risk of encountering the bug on a volume of a given size.

Volumes formatted at sizes around 90 Mbytes with Hard Disk ToolKit are especially vulnerable to the bug, but using Erase Disk on one of these volumes makes it safe.

By contrast, Hard Disk ToolKit can format volumes safely at 96 Mbytes and 120 Mbytes that then trigger the bug when reformatted with Erase Disk.

Quick fixes. If you have to rely on a recovery utility such as Central Point's CP DiskFix to keep the system going until you have time for the long backup and repartitioning chore, you can save recovery time by turning off all the checking options except Volume Information Block.

CP DiskFix will still clear the "dirty" flag so the volume can mount on the desktop without going through all the checks. Obviously, this is not appropriate if there is any possibility that a different problem exists.

Quite a few readers sent electronic mail or called about the bug, often reporting that new PowerBooks with 120-Mbyte drives were formatted to waste megabytes of useful disk space.

Dean Benz had been chasing the problem on his PowerBook 160 ever since he got the computer. After the column appeared, he determined that the maximum safe partition size on the IBM 120-Mbyte drive is 122,687 Kbytes. At 122,688 Kbytes, the bug activates either with Apple's HD SC Setup or with Erase Disk.

Look long. There are many possible ways of tackling the overall problem.

In the most direct approach, Apple could fix the bug in the ROMs of future Macs and offer customers updated ROMs for existing Macs, perhaps for a small service charge. Given Apple's demonstrated reluctance to upgrade ROMs, however, it is unlikely that we will see the latter option.

As a partial solution, Apple or a third party could patch the bug with some sort of extension. This would not solve the problem for start-up volumes but could solve it for other partitions. Combining such an extension with a start-up volume that is formatted small enough for immunity from the bug would create a complete solution.

Dedicating a small volume to the System folder is not a bad idea, in general, because it helps in managing fragmentation, but Apple has never supported multiple HFS partitions in HD SC Setup.

Two other technical approaches might work in theory, but they risk introducing worse problems.

- Disk driver software loads before HFS, and a lot of tricky code here could address the problem.
- A complex extension or application theoretically could examine the extent file periodically and modify it when problems crop up.

The most realistic option of all, though, may be to address the problem in formatting software.

If all formatters took the bug into consideration when they initialized volumes, problematic configurations could be avoided, and the bug would not appear.

In fact, it appears that the extent file may be grossly oversized, and an extent file small enough to be safe is much larger than would ever be necessary to handle even the worst-case disk fragmentation.

If this is truly the case, formatter programmers, including Apple, could simply cut back the size of the extent file and eliminate the problem on any drive initialized with the new software. □

Comments on MacInTouch are welcome at 7 Parmenter Ave., Maynard, Mass. 01754. Phone (508) 897-2621. Address electronic mail to RICFORD on AppleLink or MCI Mail; to 72511,44 on CompuServe; or on the Internet to 72511.44@compuserve.com. Join us on-line in the MacWEEK Forum at location ZMC:MACWEEK on CompuServe or ZiffNet/Mac.

Ask David Ramsey

72-pin SIMMs explained

A lot of people have been asking about the 72-pin SIMMs used by the new Centris, Quadra and LC III Macs. This marks a significant change in Mac memory architecture and, in general, it's for the better.

The old. With the exception of the IIfx, which used its own deviant SIMMs, Macs since the Plus have used 30-pin SIMMs that are eight bits wide — that is, data could be read or written eight bits at a time. The number of SIMMs needed to supply a "word" of data — a word is the number of bits needed to fill the internal registers of the processor — is called a "bank." Macs based on the 68000 processor are 16-bit machines and, thus, have two SIMMs to a bank, while Macs with 68020 and higher processors are 32-bit machines that require four SIMMs to a bank. This is why you must add, replace or remove SIMMs in multiples of two or four. (The '020- and '030-based LC and LC II are exceptions because they use 16-bit-wide data buses, which slow their processors' access to RAM.)

The new. The new Macs — the LC III, Centris 610 and 650, and Quadra 800 — use 72-pin SIMMs that read and write 32 bits at a time. Each 32-bit-wide SIMM now is a bank all by itself, so you add, replace or remove these SIMMs one at a time. Thus, the four SIMM sockets in a Quadra 800 are the equivalent, in a sense, of the 16 SIMM sockets in a Quadra 950.

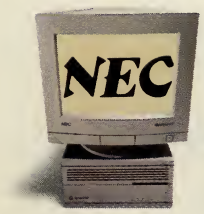
The problem is that despite Apple's declaration that these are "industry standard" SIMMs, only IBM Corp.'s PS/2s and a (very) few clones use them; the majority of IBM PCs and compatibles use Mac-type 30-pin SIMMs, albeit with nine chips. And the 72-pin SIMMs the PCs do use are 36 bits wide, since the PC architecture calls for one parity bit for every eight data bits. So while you can use PC SIMMs, you'll be paying for memory your Mac doesn't need and can't use. Doubtless 32-bit-wide Mac SIMMs soon will be available for the asking, but they won't be industry standard.

So why the switch to 72-pin devices? Simple. One 72-pin SIMM socket is a lot cheaper than four 30-pin SIMM sockets, and this keeps production costs — and street prices — for new Macs down.

Next week: A look at memory and performance issues.

Please send questions to David Ramsey on CompuServe: 76702,335 or to Ask David Ramsey, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105.

If you're thinking of buying a Mac monitor, we'd like to offer this note of encouragement.



It's a $100 United States Savings Bond.

And one just like it could be yours when you buy a NEC MultiSync® FG monitor for your Mac. Which adds up to a $100 savings on one of the best line of monitors ever made.

If What You See is What You Get is what you want, you've got it with NEC.

Their revolutionary FullScan™ technology, together with the MacFG Color Display Interface card gives you bigger, more usable pictures and flatter-looking screens, with less distortion at the edges.

A high contrast screen surface improves focus and displays more colors vibrantly.

And NEC's AccuColor™ Control System lets you accurately match colors right on-screen to printed output.

Need an outside opinion? *MacWorld* gave the 3FGx and 6FG their Editor's Choice award. *MacUser* rated 5 mice for the 4FG, and 4 mice for the 5FG and 6FG.

For the name of the NEC dealer nearest you, just call 1-800-NEC-INFO.

After all, there's nothing like starting off a relationship on a good note.

MERISEL℠
World Class Distribution℠

All product names are trademarks of their respective companies.©1993, Merisel, Inc., Corporate Offices: 200 Continental Blvd., El Segundo, CA 90245 (310)615-3080. Offer good on purchases from 3/1/93 to 4/15/93. Receive a US Savings Bond - $50 for the 3FGx and 4FG; and $100 for the 5FG and 6FG. Mail claim form, along with the dealer invoice showing receipt of the monitor and Mac adapter, to Merisel by 4/29/93. In case of corporate or volume purchases, there is the option of receiving NEC product equal to the value of the purchase price of the savings bond.

PBTools™, Worth the Wait, Worth its Weight.

Billy Steinberg's PBTools™ All Power, No Fluff

Keep the Power in Your PowerBook! Run longer... Track battery power in real time... Secure your data... Find the elusive cursor... Extend your keyboard. Billy Steinberg's PBTools gives you the real stuff, without the fluff.

PBTools For Power

Maximum battery conservation, minimum wait.

- Takes actual voltage readings every minute.
- Automatically sleeps drive, backlight and whole system.
- Graphs power use for the past 96 hours.
- Tracks multiple batteries.
- "Deep Discharge" conditions your battery.
- "Don't Rest CPU" option prevents processor slowdowns.
- Turns AppleTalk on and off instantly.

PBTools For Protection

Easy password security.

- Blanks the screen either when you sleep or wake your PowerBook.
- Displays password request or your message.
- Protects LCD screen.

PBTools For Productivity

Stretch your keyboard, find your cursor and control that pesky Caps Lock key.

- Hotkeys for Drive Sleep, System Sleep and Drive Wake.
- "Find Cursor" hotkey for that elusive cursor.
- PageUp, PageDown, Home and End key functions stretch keyboard power.
- Thickens hard-to-see PowerBook Cursor.
- Caps Lock management eliminates accidental caps.

If you want weighty performance without memory-wasting fluff, here's a program that puts your PowerBook at your command. Tap into real power and see what PBTools can do for you.

For more information or the location of a dealer near you, call us today!

1-800-453-7671

INLINE DESIGN

308 Main Street
Lakeville, CT 06039
203-435-4995
Fax: 203-435-1091

PBTools is a trademark of Bill Steinberg. PBTools requires System 7. Macintosh is a registered trademark, and PowerBook is a trademark of Apple Computer, Inc.

Your Investment In Removable Storage Has Led To A Major Expense

The problem with SyQuest technology—it appears inexpensive. You'd have "invested" a whopping $6800 for the cartridges in this photo. You could have ***saved*** $5000 for the same amount of storage.

Even SyQuest's new 88MB device, the one that writes to 44MB cartridges, is not the answer. It behaves more like a floppy disk than a hard drive. That's right, when writing to a 44MB cartridge (Isn't that what you have?) it performs 87% slower than its predecessor. Is that what you want - a big, heavy, expensive diskette?

You have a choice, 3.5-inch, rewritable, magneto-optical technology (MO). Look how it compares.

Speed
MO writes four times faster than SyQuest's new device writes to 44MB cartridges.

Compatibility
ISO standard, 3.5-inch MOs are compatible with devices from Sony, IBM, Epson, Panasonic, Fujitsu, Ricoh and Olympus. SyQuest is compatible with ... well, SyQuest.

Portability
Smaller is better. A 3.5-inch MO cartridge fits in your shirt pocket—128MBs to go!

Data Reliability
MO cartridges are impervious to magnetic fields and provide ultimate reliability. Data life is six times greater than SyQuest.

Economy
1GB of 3.5-inch MO media is just $400. SyQuest media will set you back $1200 - $1500. The savings pay for an MO device.

Capacity
A 3.5-inch MO cartridge holds 3 times that of a 44MB SyQuest. Yet it costs 50% less than an 88MB SyQuest.

MOre from Optima Technology. Optima's DisKovery™ 128MO includes a 128MB cartridge, software for floppy disk emulation, mirroring, and partitioning, and other features like external SCSI termination and multiplatform compatibility.

Announcing Optima's "**MOre for Less**" media swap. Optima will trade one Optima 128MB MO cartridge (lifetime warranty) for three of your 44MB cartridges.* An even swap that's MOre than fair. Here's your opportunity to get a real return on your investment.

To get the new standard in removable mass storage, call your Optima dealer including participating ComputerLand, Entre, Connecting Point, MicroAge, JWP and other selected VARs, or call Optima for the dealer near you, 714/476-0515, ext. 128.

Optima DisKovery 128MO

OPTIMA™
TECHNOLOGY

USA, 17526 Von Karman, Irvine, CA 92714
Tel: 714/476-0515, Fax: 714/476-0613, AppleLink: OPTIMA
Europe, France, Tel: 1/40 85 86 49, Fax: 1/40 85 86 47
Far East, Singapore, Tel: 468 0831 Fax: 469 8193

Optima Technology, the Optima logo, and Diskovery are trademarks of Optima Technology Corporation. SyQuest, Sony, Epson, Panasonic, Fujitsu, Ricoh and Olympus are trademarks of their respective companies. IBM is a trademark of International Business Machines Corporation.

* Limited to 1GB per 128MO device purchased. Offer expires March 31, 1993. Call participating dealers for "MOre for Less" guidelines.

Double Feature!

FREE! DiVA's VideoShop® 1.0 SE and video clips from THE IMAGE BANK® will be featured free on 44MB and 88MB SyQuest® cartridges. Now you don't have to go to Hollywood to take a screen test! The leading QuickTime™ based video editor, lets you experience the movies without even leaving your desktop. Start with The IMAGE Bank's video clips on your SyQuest cartridge. Apply dramatic special effects, superimpose graphics, titles or animation just like you see on the big screen. You can even layer up to 16 video tracks to create dramatic compositions. Never before has movie-making been so easy and exciting. For more information and theaters near you, call 1-800-245-CART. (Popcorn not included).

Now Playing for a Limited Time...

This special multimedia promotion co-starring DiVA and SyQuest, will last from February 22 through April 30, 1993.

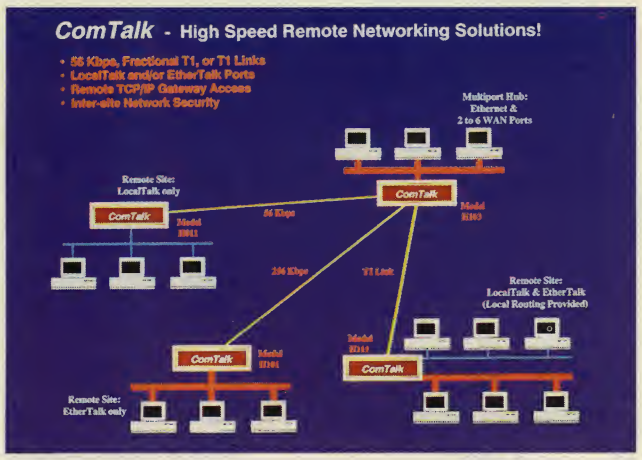
SyQuest® TECHNOLOGY

DiVA®

©1993 DiVA/Avid, Inc. All rights reserved. All trademarks and registered trademarks are the property of their respective companies.

Fastest remote AppleTalk

Speed up your large Macintosh remote file transfers with ComTalk and new low cost switched (or dedicated) synchronous 56 Kbps services available from your telephone company. APT's ComTalk routers use these WAN links to interconnect your remote AppleTalk networks at high speeds (six times faster than the "high speed" 9600 baud modems).

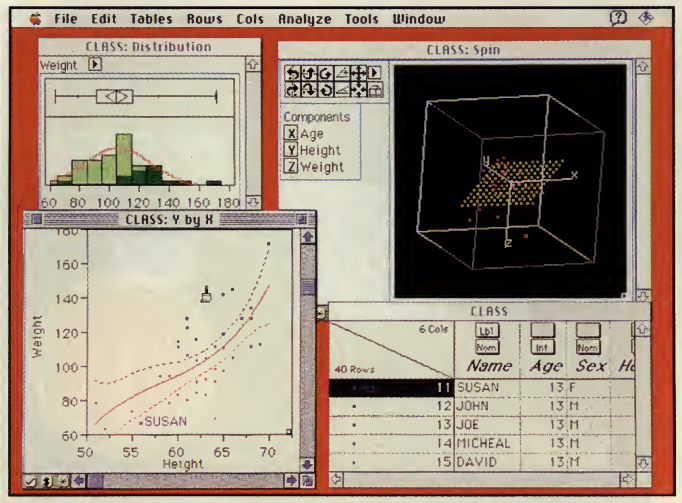


Other ComTalk features include:
- LocalTalk and/or EtherTalk ports.
- WAN port speeds up to 1.544 Mbps.
- Up to six WAN ports for Hub configurations.
- Macintosh access to remote TCP/IP networks.
- Inter-site network security.
- Combination remote/local router models.

APT Communications, Inc.
9607 Dr. Perry Road, Ijamsville, MD 21754, (800) 842-0626 or (301) 831-1182

Make this your "leap" year with *JMP*®

Version 2.0 of JMP statistical discovery software has earned *MacWEEK's* 1991 Target Award for outstanding Analytical Tool. This new release (twice the size of the original) delivers multivariate tests, Shewhart control charts, non-linear fitting, correspondence analysis, power calculations, logistic regression, multiple comparisons, spinning biplots, discriminate scores, and much more.



Call today for your free demo disk and Points of Interest from the leading name in data analysis software.

SAS Institute Inc.
JMP Sales Department
(919) 677-8000 Fax: (919) 677-8166

PowerBook Presenter

If your usage calls for thousands of colors and complex multimedia applications, go with this one. The BOXLIGHT 2040 is an innovative, full color active matrix computer data and video projector which eliminates the need for an overhead projector. It supports all Macintosh, IBM PC compatible computers and video for all of your on-the-road presentations!

From BOXLIGHT, the LCD Projection Specialists.
- Knowledgeable staff
- Guaranteed satisfaction
- Same day shipping
- 1 year warranty
- Choose from over 50 models

Call for free catalog.

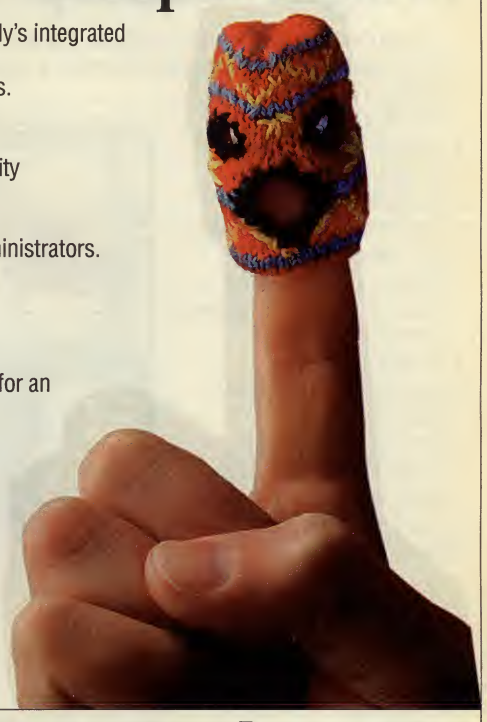
BOXLIGHT Corporation
17771 Fjord Dr., NE
Poulsbo, WA 98370
(800) 497-4007

Now, prevent Mac holdups.

Deter Mac intruders with The Empower® Family's integrated security solutions:
- Empower I - essential protection for PowerBooks.
- Empower II - strategic defense for shared Macs.
- Empower Remote - the new, one-of-a-kind administration tool for remotely managing security over Mac networks.

All Empower products include:
- Emergency override capabilities for security administrators.
- Hard and floppy disk/drive controls.
- A secured screen saver.
- Options for defining multiple users and security administrators.

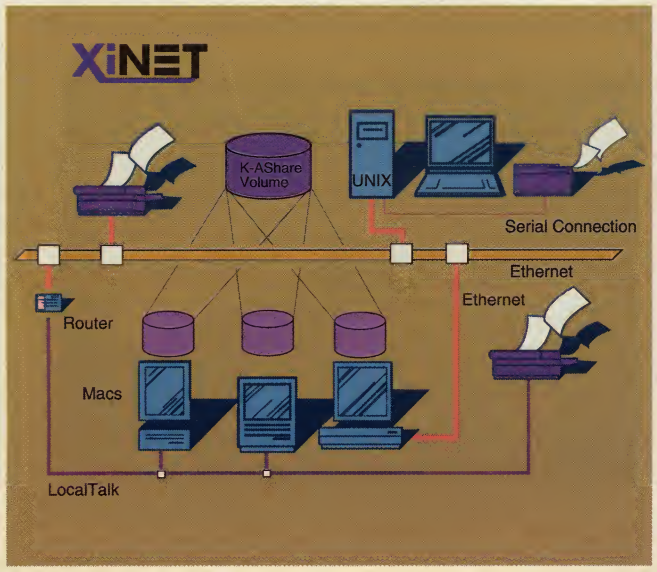
Contact Magna today to find out if you qualify for an evaluation copy.



Magna
332 Commercial Street, San Jose, CA 95112
(408) 282-0900 ext. 200 Fax: (408) 275-9147
AppleLink: MAGNA

Integrates Macs with Sun, S.G.I., H.P.

File Server and Network Print Spooling software
- Macintosh computers use a UNIX host as an AppleShare file server.
- Files stored on the UNIX server appear as icons to Macintosh users, allowing users to stay in their familiar environment.
- Macintosh users can access mounted NFS file systems anywhere on the network.
- Macintosh and UNIX users share PostScript printers anywhere on the network without waiting; on LocalTalk, Ethernet or serial connections.
- No additional Macintosh client software needed.



XINET
2560 Ninth Street, Suite 312
Berkeley, CA 94710
(510) 845-0555 Fax: (510) 644-2680 E-mail xinet@xinet.com

A PowerDeal for PowerBooks

Introducing a time-limited special bundle of a battery with the industry's best selling full cycle battery reconditioner/charger.

Battery contains special fusing system, to prevent dangerous short-circuit "melting" - unlike batteries with single-sided fusing.

Our U.S. made Reconditioner/Charger, with a one year history, has proven the most reliable and affordable investment for PowerBooks.
- Available now
- $135.95 - Special bundle price

Separately: BC-4070, $119.95, battery, $59.95

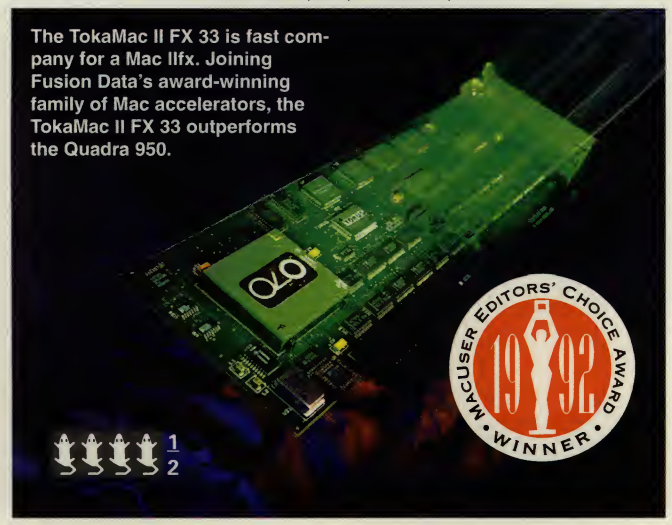
To order, (800) 659-5956. Visa/Mastercard accepted.

Lind Electronic Design, Inc.
6414 Cambridge St., Minneapolis, MN 55426
(612) 927-6303 Fax: (612) 927-7740

Turn your Mac into a Quadra 950

"Best Accelerator of the Year", MacUser Magazine Editors' Choice, Jan '93.
33 Mhz and 25 Mhz 68040 TokaMac® Accelerators for IIfx, IIci, IIsi SE/30, LC.

- Low cost - from $795.
- Most compatible '040.
- Easy install--PDS slot.
- Fastest 68040 tested.
- Needs no extra SIMMs.
- Shipping since 4/91.
- Upgradeable.
- Software controllable.
- Saves NuBus slots.
- Up to 128k Cache.
- Great for Graphics, DTP.
- Call about II, IIx, IIcx.
- 30 Day M. B. Guarantee
- Purchase factory direct



FUSION DATA SYSTEMS
8920 Business Park Dr., Austin, TX 78759
(800) 285-8313 ext. 301 Fax: (512) 338-1276

Free! Color Pre-press network guide

Find out how the largest and most productive publishing environments configure their networks to maximize their performance and control.

- Speed up PostScript and color printing
- Remove network bottlenecks
- Take the mystery out of image management
- Examine several sample network layouts
- Understand the alphabet soup of color pre-press

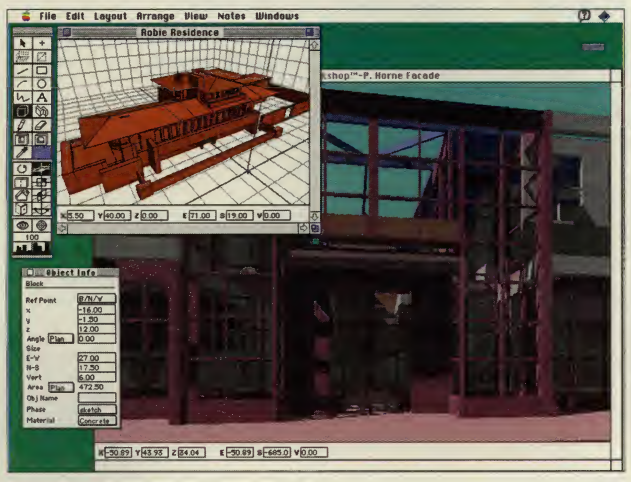
Call 1-800-SPOOLER or fax us for a free copy of "Pre-Press Network Technology for the mid '90s" a white paper describing the key problems and solutions for maximum productivity.

Compumation, Inc. 100 North Patterson St., State College, PA 16801
(814) 238-2120, Fax: (814) 238-2246, AppleLink: COMPUMATION

DesignWorkshop™ - Intuitive 3D CAD

"With DesignWorkshop, the computer interface no longer gets in the way of the creative process."
– Neil Kleinman, Editor, Macintosh Scientific & Engineering Report

- Sketch in live 3D perspective with 3D crosshair
- Dynamic 3D viewing
- 3D click-and-drag direct manipulation
- Floating-point precision, Mac-style ease of use
- Create, move, and resize openings as easily as drawing a rectangle
- 3D object snaps
- Import/export Claris CAD, Archi-3D, DXF, etc.
- 32-bit color rendering, QuickTime sun studies and walkthroughs
- Only $895, with 90 day satisfaction guarantee



Artifice, Inc.
P.O. Box 1588, Eugene, OR 97440
(503) 345-7421 Fax: (503) 346-3626

Reduce ELF monitor emissions

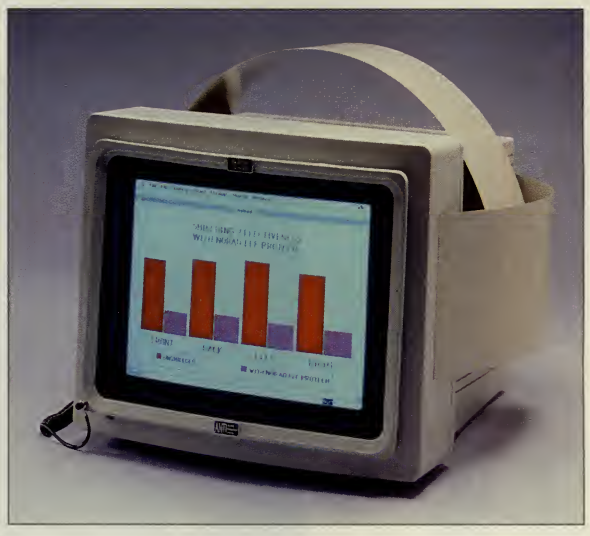
Limit your exposure to ELF magnetic and electric fields from your monitor. Our products have been tested and verified to be the most effective radiation shields available.

ELF ProTech:
- Cuts ELF magnetic fields by up to 70%
- Eliminates screen jitter or distortion

NoRad Shields:
- Blocks all electric fields - ELF, VLF and up to microwaves
- Eliminates glare, reflections and static electricity

UltraGlass:
- Best electric field glass filter
- High light transmission

Ask us about the NoRad Solution!



NoRad Corporation
1160 E. Sandhill Ave. Carson, CA 90746 (800) 262-3260 Fax: (310) 605-5051

Office Tracker In/Out Tracking

Finally, a System 7 Savvy In/Out Tracking System that everyone on the network can see and use!

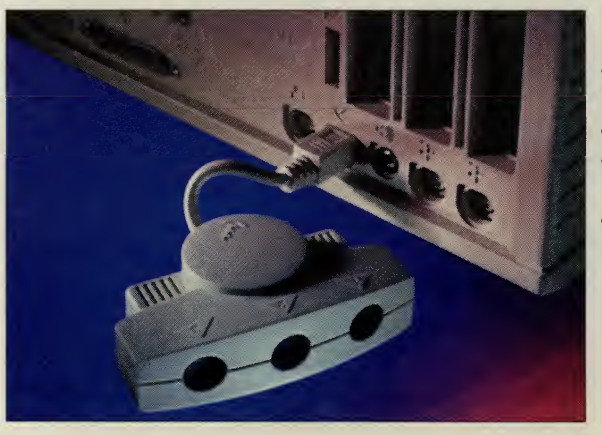
- Fun and easy-to-use
- Create one board or many
- Network users sign in/out with a single keystroke
- Notification feature alerts you anytime someone or something is signed in or out
- Log feature lets you create daily, weekly, monthly reports
- Learns user's habits to automatically sign them in or out
- Saves everyone time & hassle

Suggested retail: Single-user $195; 20-user $495; 50-user $995; affordable site-licensing

MILUM Corporation
P.O. Box 163985, Austin, TX 78716-3985, (800) 257-2120
(512) 327-2255, Fax: (512) 328-9824, AppleLink: MILUM

3 serial ports for your Mac!

Now it's easy to connect up to three serial devices to your Mac's Modem Port and still have access to AppleTalk devices on the Printer Port! The AXiON Electronic Switch allows up to three serial devices to share a single port, on any Mac, with CDEV control!



- Automatically selects device from Comm ToolBox savvy applications
- Supports LocalTalk on Printer Port
- Easy to install & use
- Call today for information about where to buy!
- Suggested list price: $159.00

AXiON™
1150 Kifer Road, Suite 203 Dept. MW-SC4, Sunnyvale, CA 94086
(800) 8-AXION-1, (408) 522-1900, Fax: (408) 522-1908

A faster network fax.....

Cypress launches FaxPro II 14.4™, a speedy new addition to the FaxPro II™ family. FaxPro II 14.4 offers your network users the cost-saving speed of 14.4kbps fax coupled with the Cypress' ultra easy-to-use multiuser fax software

Features include:

- 14.4 kbps fax send and receive
- Automatic fax queuing and conversion on the server
- SmartResend™
- Automatic printing of received faxes
- Address book software with mailing list function
- Operates on virtually any type of network
- Complete hardware and software system
- 30 day money back guarantee

For information call: (408) 752-2700.

Cypress Research Corporation
240 East Caribbean Drive,
Sunnyvale, CA 94089
Fax: (408) 752-2735 AppleLink: CYPRESS

PowerCharger

- Portable full cycle conditioner charger
- Includes both AC adaptor and automobile cigarette light adaptor
- Discharges and recharges both original and BTT's batteries for Macintosh PowerBook 140, 145, 160, 170, 180 and 165C.

MC-170 Battery: $69.95
MC-CHR PowerCharger: $129.95
MC-KIT Starter-Kit (one MC-170 and one MC-CHR): $1149.95

Dealers - Products available through Ingram Micro

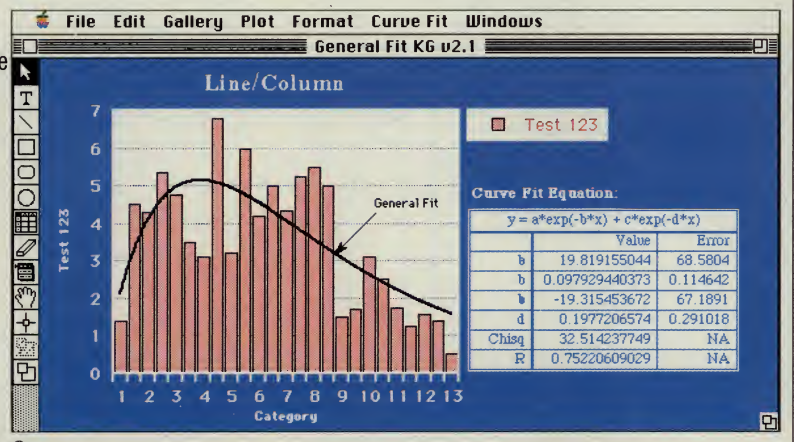
BATTERY TECHNOLOGY, INC.
5700 Bandini Boulevard, Commerce, CA 90040
(213) 728-7874 (800) 982-8284 Fax: (213) 728-7996

KaleidaGraph v2.1

Now you can import data, analyze that data, and generate high resolution scientific and business graphics from one robust, easy-to-use program.

New features:

- Now! 16 plot types: Line, scatter, double Y, high/low, probability, X-Y probability, stack histogram, box, percentile, horizontal bar, stack bar, column, stack column, polar, pie, text, and template.
- Automate with plot scripting
- Accompany your plots with data tables
- Additional curve fits (smooth and interpolate)
- Automatically display and update a curve fit's equation
- and more... for only $249

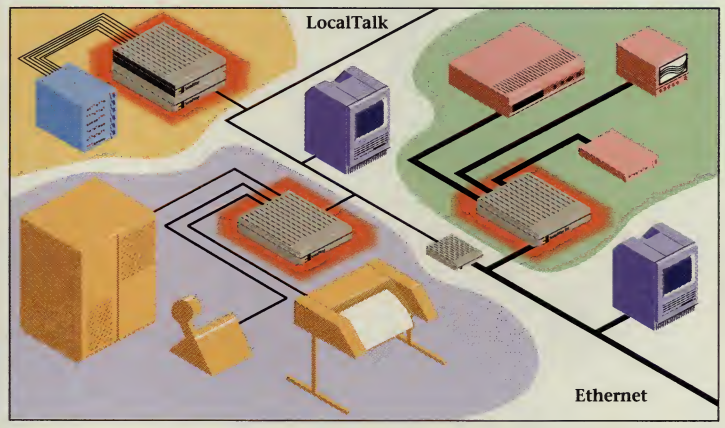


Synergy Software 2457 Perkiomen Ave., Reading PA 19606 (215) 779-0522

Share 3 modems on Ethernet—$999

Now all networked Macintoshes can share all serial devices. With SerialWay™, any printer, plotter, modem, or other serial device, can be shared by the entire network. Access all three SerialWay ports simultaneously. Add multiple SerialWays to share unlimited devices. No performance impact. And, SerialWay is great for AppleTalk Remote Access.

Device "Pooling". Statistics log. Passwords. Speeds to 57.6k. CTB support allows a Mac to access 16 devices simultaneously. Get SerialWay LT for LocalTalk, SerialWay EN for Ethernet.



International Transware, Inc.
1503 Grant Road, Ste. 155, Mountain View, CA 94040 (800) 999-6387 Fax: (415) 903-9544

Show and sell in MacWEEK's showcase

Put your product in the spotlight any week, or every week in MacWEEK's Showcase advertising section. It's the perfect place to start your ad campaign and build visibility.

Use MacWEEK's Showcase to:

- Introduce new products,
- Test direct-response channels, and
- Reinforce your advertising message with a low-cost frequency schedule.

To participate in MacWEEK's Showcase, advertisers must submit a color proof with the following:

- One 35mm slide or four-color transparency of the product or
- Computer generated art on disk, plus
- 75 words of ad copy, a brief headline, contact address and phone number.

Copy will be edited by MacWEEK if length exceeds 75 words.
Each Showcase unit features one photograph or piece of artwork.
MacWEEK will choose between photographs if more than one is submitted.
Insertion order and materials must be received two weeks before issue date.

First-time advertisers must submit full payment with materials.

Frequency	Rate*
1 issue	$1,995
3 issues	1,900
6 issues	1,795
12 issues	1,715
24 issues	1,625
36 issues	1,510
48 issues	1,415

*Showcase units are non-commissionable.
For further information, contact your Showcase representative:
West Coast
Becky Bacon (415) 243-3542
Midwest/East Coast
Michele Imfeld (415) 243-3563

MacWEEK
301 Howard Street 15th Floor
San Francisco, CA 94105
(415) 243-3500

Free 1200 Baud Hayes Modem !
Buy any Apple system and a monitor from Mac and More and we'll give you a modem. But supplies are limited so place your order while they are still in stock!!!

CPU's and More...

Custom configurations are just one of our many specialties. Whether it's something as simple as additional RAM, or you need a bigger hard disk and an accelerator installed, just call us. We build more Apple CPUs to the customer's specifications than anyone else. Just start with these base-CPUs and tell us your needs.

Macintosh CPUs

Macintosh Classic II
Mac Color Classic
Macintosh LCII
Macintosh LCIII
Macintosh IIsi
Macintosh IIvx

CALL

Macintosh IIci
Centris 610
Centris 650
Quadra 700
Quadra 800
Quadra 950

PowerBooks

PowerBook 160c
PowerBook 165
PowerBook 180
PowerBook Duo 210
PowerBook Duo 230
Apple Mini- & DuoDock

CPU Accessories

ETC PowerGlide Extended Keyboard	$99
ETC PowerBook ADB Keypad	75

Systems and More...

Mac and More is an expert at getting the computational power of IBM's AS/400 family to integrate with your Macintosh network.

Andrew NetAxcess Gateway Products

NetAxcess Macintosh LC	$3995
NetAxcess Macintosh II-family	3995

IBM Application System/400

AS/400 9402 Model E02, E04 & E06	Call

Accelerators and More...

DayStar Digital

DayStar 33MHz PowerCache w/FPU	$479
DayStar 40MHz PowerCache w/FPU	649
DayStar 50MHz PowerCache w/FPU	859

Radius

Radius Rocket 25i	$1149
Radius Rocket 33	1999
Radius RocketShare	439

IBM Business Partner AS/400

New Authorizations
To provide you with complete solutions.

digital Authorized Reseller

Hard Drives and More...

Featuring ETC Peripherals' DataDrive family exclusively, Mac and MORE offers you a storage solution that is consistently written-up in MacUser and Macworld as some of the best values around.

	Int.	Ext.
Quantum		
This line of drives offers an incredible value from a proven manufacturer.		
ETC DataDrive 42Q - ELS	$176	$235
ETC DataDrive 85Q - ELS	201	260
ETC DataDrive 127Q - ELS	269	328
ETC DataDrive 170Q - ELS	304	363
ETC DataDrive 240Q - LPS	400	458
ETC DataDrive 525Q	903	963
ETC DataDrive 1225Q	1659	1719
Maxtor		
ETC DataDrive 120M	$289	$349
ETC DataDrive 213M - New	399	459
ETC DataDrive 340M	635	689
ETC DataDrive 1200M - Panther	1379	1489
Fujitsu		
ETC DataDrive 425F	$899	$949
ETC DataDrive 520F	949	999
ETC DataDrive 778F	1099	1199
ETC DataDrive 1. 2F - 5.25"	1449	1499
ETC DataDrive 1. 7F - 5.25"	2349	2449
Toshiba		
ETC DataDrive 877T	$1149	$1209
ETC DataDrive 1200T	1539	1599

Hewlett-Packard & Seagate/Imprimis

We carry the complete line!	Call

Call Mac and More and get the best value on the complete family of internal and external drives from both of these manufacturers.

Removables and More...

Consistently chosen by reviewers for its performance, support and value, ETC's Removable SyQuest Drives just can't be beat! These low prices include drive, one cartridge, cables, terminator, and ETC Tools 3.0.

ETC DataDrive 44R SyQuest	$389
ETC DataDrive 88R SyQuest	489
ETC DataDrive 88C SyQuest	619
NEW! Reads and writes to both 44MB and 88MB cartridges. Also comes as a dual drive.	
ETC DataDrive Dual 45/88C SyQuest	859
This Dual SyQuest drive comes with one 45MB cartridge. Add an 88MB cart. for $99.00	
ETC DataDrive 128R-MO	1099
Uses the popular TEAC M-O drive.	
ETC DataDrive 650R-MO	2299
A new low-price for a big M-O drive using the industry standard SONY mechanism.	
SyQuest 45MB Cartridge	$64
SyQuest 88MB Cartridge	99
128MB M-O Cartridge	49
650MB M-O Cartridge	125

Video and More...

We have a complete collection of Apple and Apple-compatible video products. Call us with your video requirements and we will help you choose a video system that is right for you.

Apple

Apple 12" Monochrome Monitor	$229
Apple 12" RGB Monitor	436
Apple 14" RGB Monitor w/Tilt-Swivel	548
Apple 16" RGB Monitor	1293
Apple 21" RGB Monitor	3239

Radius

We carry the full line from this innovative developer of video peripherals.

Radius Monochrome FPD	$599
Radius Monochrome Pivot Board	259
Radius Precision Color Pivot	995
Radius Color Pivot Board	499
Radius 19" Monochrome Monitor	932
Radius 21" Two-page Color Monitor	3199
Radius 8XJ Video Board	515
Radius 8X Video Board	739
Radius 24XK Video Board	859
Radius 24X Video Board	1629

SuperMac

SuperMatch 17T Trinitron Monitor	$1089
20" Color Dual-Mode Trinitron	2519
21" Color Two-Page Monitor	2519
Spectrum/8 Series III	419
Spectrum/8•24 PDQ	829
Spectrum/24 Series IV	829
Spectrum/24 PDQ+	1509
SuperMac Video Spigot	CALL

RasterOps

20" Hitachi Color Monitor	$1449
20T Multi-Scan Color Monitor	2299
21" Color Monitor	2649
8XL Video Board	469
8XLI Video Board	924
PaintBoard Li Video Board	825
PaintBoard 24 Video Board	1539
24XLI Video Board	1895

E-Machines

16" E-Machines T16II	$1299
19" E-Machines T19II	2345
DoubleColor LC Video Board	409
DoubleColor SX Video Board	369
DoubleColor LX Video Board	649
Futura SX Video Board	489
Futura MX Video Board	815
Futura LX Video Board	1029

Seiko

CM1445 13" RGB Monitor	$499
CM1760LR 17" Trinitron RGB Monitor	1199

Printers and More...

If you need it in print, the collection of printers that we have to offer can't be beat in performance or price. We offer printers from Apple, GCC, Hewlett-Packard, Texas Instrument, ETC Peripherals, NewGen, and QMS.

Texas Instruments

TI microLaser PS17	$1249
TI microLaser PS35	1369
TI microLaser Turbo	1609
TI AppleTalk Interface Kit	50

Apple

Apple Personal LaserWriter LS	$908
Apple Personal LaserWriter NTR	1610
Apple LaserWriter IIf	1825
Apple LaserWriter IIg	2246
Apple LaserWriter Pro 600	2048

Digital Equipment Corp.

DEClaser 1152	$1079

Comes with Level-2 PostScript, toner cartridge, 30-day money back guarantee, and 1-year on-site service warranty.

Free On-Site Warranty

GCC

GCC PLP II	$779
GCC BLP Elite	1169l
GCC BLP IIs	Call
GCC WriteMove II	Call

Others

ETC Peripherals DataBeam TCP	$3699
QMS PS-410	1499
QMS PS-815	2999
QMS PS-825	3499
QMS PS-815MR	4059
QMS ColorScript 210	4499

Scanners and More...

Scanners helped revolutionize the Desktop Publishing Industry. Here are some of the best values around.

Apple One Scanner	$944
Microtek Scanmaker II	929
Microtek Scanmaker IIXE	1189
Microtek 1850s Slide Scanner	1599
UMAX UC630	1149
UMAX UC840	1299
UMAX UC1200	2999
UMAX UTA-1 Transparancy Option	699

Networks and More...

If you need networking solutions today, we can provide you with everything you need. From LocalTalk routers to Ethernet Interface Cards, Hubs and Repeaters

ETC DataFlow II (Tk & Tn) or (Tk & 10T)	$140
ETC DataFlow II Combo3	199
ETC DataFlow LC (Tn & 10T)	199
ETC DataFlow 10BaseT 12-Port Hub	529
ETC DataFlow Repeater	339

Mac and MORE Inc.

Your Mail Order SuperStore™

800-846-4622 USA (813) 881-0634 Fax
81(792) 94-4688 Japan* 81(792) 95-2201 Fax
(0)3473-76411 Holland* (0)3473-76242 Fax
800-846-4611 Canada 813-881-0634 Fax
800-945-TECH Tech Support 813-886-3041 Fax
813-884-7466 On-Line BBS No Parity; 8-bit; 1-stop
813-886-9534 Mac Consulting 813-886-3041 Fax
800-846-1727 Mac Rental 813-886-3041 Fax

7 Open 7 Days a Week
9:00 - 10:00 Mon-Fri
10:00 - 6:00 Sat
12:00 - 6:00 Sun

5414 Beaumont Center Blvd., Ste 210
Tampa, Florida 33634

800-846-4622 • 813-886-9534 • 813-881-0634
Toll Free: U.S. & Canada
International Calls
FAX Line: Open 24 hours

ABATON • ABCOM • ACIUS • ADOBE • ALDUS • APPLE • APPLIED ENGINEERING • ASANTE • BDT • CLARIS • COSTAR • CURTIS • DANTZ • DATAPRODUCTS • DAYNA • DAYSTAR • DIGITAL • DOVE • E-MACHINES • EMAC • ENVISIO • EPSON • ETC PERIPHERALS • FARALLON • FUSION • FUJITSU • GCC • HAYES • HEWLETT-PACKARD • IBM • KENSINGTON KODAK • MAXA • MAXTOR • MICROSOFT • MICROTEK • NEC • NEWER • NEWGEN • NUVOTECH • PANAMAX • PASTEL • PROMETHEUS • PSI • QMS • QUANTUM • QUARK • RADIUS • RASTEROPS • SEAGATE • SEIKO • SHIVA • SIGMA DESIGN • SONY • SUPERMAC • SYMANTEC • SYQUEST • TEXAS INSTRUMENTS • TOSHIBA • UMAX • WACOM

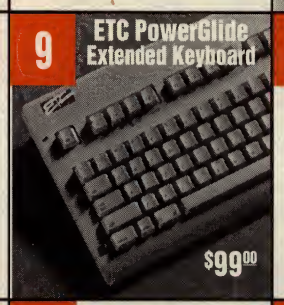
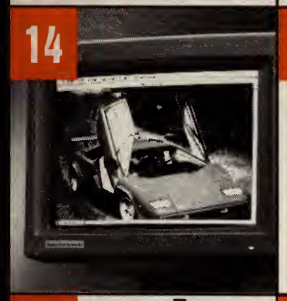
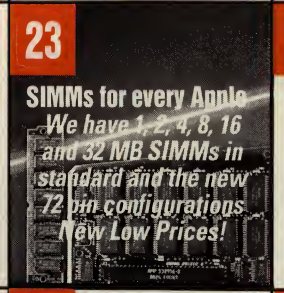
We Rent and Lease Computers!

One of the biggest resellers of Macintosh systems in the US now rents Macs as well. Mac and MORE has competitive prices. Call us with your system requirements and we'll put together a rental package that is just right for you. No other rental company can provide you with the level of service and support that Mac and MORE can. And if you get so attached to the system you're renting, just call us—we'll sell it to you.

Double Your Macintosh Warranty!

Double up your warranty for as little as $10 a month with Club 24. In addition to our low prices and good service, Club 24 now gives you a low cost option for extending your limited warranty, plus some very special benefits such as: guaranteed 72-hour repair or replacement turnaround; free overnight shipping both ways; and technical support via an exclusive toll-free telephone line for Club 24 Members. Call now for details!

Mac and MORE Specials for March

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
$389.00 **ETC DataDrive 45R SyQuest Removable** The most popular removable on the market. All drives come with one cartridge!	1 $599.00 **ETC DataDrive 88C SyQuest Removable** This new SyQuest drive can read and write both 45 & 88 removable cartridges.	2 UMAX **UMAX UC-630 600 dpi Color Scanner** The mainstay for most desktop publishers, this color scanner is easy-to-use! $1,149.00	3 CoStar LabelWriter II $185.00	4 QMS **QMS 860 HammerHead 11x17 LaserWriter** Provides PostScript output on tabloid size paper at an amazing 8 pages per minute. $4,199.00	5 FUJITSU **Fujitsu 520MB Internal Hard Disk** One of the fastest drives on the market. External model is only $999.00 $949.00	6 TOSHIBA **New and Fast CD-ROM Toshiba 3401-E** This was the *hottest* CD-ROM at Macworld in San Francisco. 200msec access. $579.00
7 ETC SyQuest 88R DataDrive A 4-mice rating from MacUser has made this the best selling ETC drive! $489.00	**ETC SyQuest Specials** The #1 removable media drive is available as an internal kit for the new CPU's or in dual configurations. Call	9 ETC PowerGlide Extended Keyboard  $99.00	10 SONY **SONY 1604 16-inch Trinitron Monitor** Using the Trinitron tube, the SONY 1604 offers a razor sharp image at a great price. $1125.00	11 Texas Instruments $1,249.00	12 TOSHIBA **1.2 Gigabyte External Hard Disk Drive** A reliable drive with a lot of storage room at a very good price. Features ETC Tools. $1,599.00	13 Quantum **85MB Internal Hard Disk From Quantum** From the new ELS family, this economical drive is our best seller. External for $260.00 $201.00
14 	15 SII **Seiko Instruments CM-1445 14" Monitor** Using Trinitron technology, this 14-inch RGB monitor is over a $100.00 cheaper than Apple! $489.00	16 DAYSTAR DIGITAL **50MHz PowerCache with Math Coprocessor** Drop one of these in your Macintosh and race past everyone else. $859.00	17 CLUB 24	18 E-MACHINES **E-Machines Futura SX** Undoubtedly, this is the best selling 24 bit video card around. Gives you 24 bit resolution on all 13 & 14" monitors. $489.00	19 SIGMA DESIGNS **Sigma Designs Power Portrait** A three star winner from MW Labs, this 15-inch portrait monitor plugs into your SCSI port. $639.00	20
21 radius **Radius VideoVision** Let your imagination run wild when you capture video for QuickTime movies or output to a VCR tape, all at 24 bit. $1,989.00	22 AE **Applied Engineering DataLink PB** Internal voice, 14.4 data and Fax communications system for your PowerBook Call	23 	24 RasterOps **RasterOps MoviePak** This daughterboard for the S//X is designed for full motion video with realtime JPEG compression/decompression $1,529.00	25 SUPERMAC **ThunderStorm** $829.00	26 **Snooper 2.0 The Hardware Diagnostic for the Macintosh** The next time you see a "Sad Mac" on your screen or your Mac's performance isn't up to par, diagnose from MAXA SNOOPER your desk with SNOOPER. the best-selling new standard for Mac diagnostics and testing tools. SNOOPER performs over 250 tests,	27 checks all your hard ware and identifies any problems. And the same Snooper runs on all Macs. SNOOPER is very easy to use and includes complete performance bench marking plus an emergency diagnostic boot disk and more! *Get a FREE copy of VIREX* $129.00
28 E-MACHINES **E-Machines PowerLink Presentor** The only portable dock that turns your PowerBook Duo into a presentation machine! $465.00	29 DAYSTAR DIGITAL **DayStar turbo 040 (33)** Get Quadra 950 performance for you Mac IIci, II, IIx, IIcx and SE/30. Turbocharge everything you do! $1,399.00	30 digital **DEClaser 1152** High performance at the lowest possible price! PostScript 2, on-site service and a 30 return policy*. $1,079.00	31 	radius **Radius Rocket 33 33MHz Accelerator** With Rocket-Share, this accelerator is like having a 2nd Mac on your desktop. $1,989.00		

System Packages For March

All of our packaged systems come complete. There are no hidden extras to purchase. Use them as a base to build the system of your dreams. And don't forget to ask about our extended service program—Club 24!

PowerBook Duo 210 Travel Package
4MB of RAM, 80MB hard disk drive, Kodak Portable Printer, Battery, Portable AC Battery Charger, and all required cables.
We can add an E-Machines PowerBook Presenter Dock for an additional $449.00!
$2199

Mac IIvx Home Business Package
4MB of RAM, 240MB hard disk drive, 80MB external hard disk, ETC extended keyboard, mouse, and all required cables. ***Save $350.00!***
Don't forget to add a monitor of your choice!
$2329

Mac Quadra 950 Designer Package
8MB of RAM, 230MB hard disk drive, ETC DataPress, 16-inch Sony color monitor, ETC extended keyboard, microphone, mouse, and cables.
Have us install an internal 45MB SyQuest drive in this package for an additional $425.00!
$7052

Double Your Disk and Expand Your SCSI Bus

ETC DataPress Hardware Data Compressor
The ETC DataPress is the only hardware data compressor for your Mac. It is 7 to 10 times faster than software compression alone. Plus, it is the first peripheral to expand your SCSI bus. Now you can put more than 7 SCSI devices on one Mac. Need more details? Call Mac and MORE.
$539

Terms and Conditions: Payment: Mac and MORE accepts Visa, MasterCard, Discover, CODs, and Purchase Orders. We will ship CODs with pre-authorized checks. Corporate and School Purchase Orders are Net-15 for orders over $2500 only, and are subject to credit approval . Warranties: All warranties on Macintosh or Apple brand products sold by Mac and More will be honored by Mac and More or its authorized agents only. Mac and More does not guarantee compatibility. Like all other Mail-Order resellers, Mac and More is not an authorized Apple reseller. All other manufacturers warranties are honored by Mac and More and the original manufacturer. Returns: All orders returned or refused will be charged a minimum 15% restocking fee. Call for an RTS before returning. Returns must be in original packing with software seals unbroken. Shipping: For advertised items totaling over $1000 we will ship to destinations in the continental US at no charge. Some large items may not be included in this offer. Ask for details when ordering. Terms, Conditions, and Prices are subject to change without notice or obligation. All products sold by Mac and More are new. We do not sell used equipment.
© 1993 Mac and MORE, Inc. All rights reserved. 3/1/93 *Prices, Promotions, Hours of Operation, Terms and Conditions may vary for these offices. Please contact them directly for details.

800-846-4622 • 813-886-9534 • 813-881-0634
Toll Free: U.S. & Canada
International Calls
FAX Line: Open 24 hours
Mac and MORE INC.

800-622-6885

UPGRADING YOUR MAC IS EASY WITH THE PROS AT MACOUTLET!

PinPoint 20" Multiscan Trinitron

MONITOR –$1799.
8-BIT SYSTEM–$2099.
24-BIT SYSTEM–$2649.

NO SURCHARGE ON VISA, MASTERCARD, AND DISCOVER

TOLL FREE LINE FOR BOTH ORDERS AND TECHNICAL SUPPORT

AMERICAN EXPRESS ACCEPTED

FULL FACTORY WARRANTY ON ALL PRODUCTS

BEST TECHNICAL SUPPORT AVAILABLE

FREE T-SHIRT WITH ALL ORDERS OVER $1000.

30 DAY MONEY BACK GUARANTEE

RasterOps

24XLI Accelerated color card	$1899.
2075M 20" Multiscan Trinitron	$2299.
NEW! MoviePak Full Motion, Full Screen Video	CALL
24STV	$779.
Sweet 16	CALL
15" Portrait	$489.

Daystar Digital

Universal Power Cache 33MHz	$395.
Universal Power Cache 40MHz	$575.
Universal Power Cache 40MHz w/68882	$679.
Universal PowerCache 50MHz	$749.
Universal PowerCache 50MHz w/68882	$879.
Turbo 040 33MHz 040	CALL

NEC

NEW 3FGX 15" MultiSync Monitor	$639.
NEW 4FG 15" MultiSync Monitor	CALL
NEW 5FG 17" MultiSync Monitor	CALL

MASS Micro

44 Meg SyQuest Removable Drive With Software Bundle And Cartridge	$479.
88 Meg SyQuest Removable Drive With Software Bundle And Cartridge	$589.

SuperMac

Spectrum 24 Series IV/Trinitron System 24 bit accelerated card with SuperMatch 20 Multiscan Trinitron	$3349.
Spectrum 8·24 PDQ SuperMatch 20" System Accelerated video card with 20" SuperMatch	$2349.
Spectrum 24 Series IV/ SuperMatch 17T Trinitron System	$1895.
Spectrum 8·24 / 8·24 PDQsi	$839.

Lapis

ColorServer 8 8-Bit color video for SE/30	$349.
ProColor Server 8•16 8/16-Bit color video for SE/30	$399.
19" Grayscale w/card	$1149.
19" Monochrome w/card	$925.
15" Portrait Display w/card	$549.

Umax

UC630 600dpi Color Scanner w/Photoshop (full ver.)	CALL
UC840 800dpi Color Scanner w/Photoshop	$1245.
UC1200 1200dpi Color Scanner w/Photoshop	CALL
Transparency/Slide Scanner Option	CALL
Automatic Document Feeder	CALL

Radius

Rocket 33 — 33 Mhz '040 Accelerator	CALL
VideoVision Complete QuickTime MultiMedia Video Solution, With Sound!	CALL
Pivot/Color Pivot	CALL

Magnavox

Magnavox Profesional 14" Color Monitor	$399.
Magnavox 8/24 Bit Color Bundles	$699./$839.
Magnavox 17" Multiscan Display	$829.

Sony

1304 13" Trinitron	$649.
1604 16" Trinitron	$1149.

Relisys

600 DPI Color Scanner Great cold lamp technology, includes full Photoshop	$999.
800 DPI Color Scanner Great cold lamp technology, includes full Photoshop	CALL

MacOutlet

48501 Warm Springs Blvd. #102, Fremont, CA 94539
(510) 623-8890 Fax(510) 623-8894

Engineering in Quality

NU DESIGN

NuDesign Specials

2.1 Gig DAT Drive.....$998

5.0 Gig DAT Drive.....$1398

- Available with Retrospect 3.1

128mb 3.5" Optical ..$998

256mb 3.5" Optical ...$1798

- MacWorlds Editors CHoice

High Quality, Fast Backup At A Super Price!

These drives combine a very fast and accurate mechanism with optional Retrospect 3.1 from Dantz Development. Just look at these specifications...

- ***10.9mb per minute average backup speed***- And High speed random access!
- ***Four-head Direct-Read-After-Write data verification***- Assuring your data will be there when you need it.
- ***Automatic built in head cleaner***- Allows your drive to remain clean and error free.
- ***SCSI II compatible interface***- Giving your drive compatibility for years to come.
- ***45 watt switching power supply & a metal cabinet*** - Assures great power and protection.
- ***MTBF 50,000 hours***- Means that your NuDesign drive will handle years of usage.

NuDesign 2.1 Gig DAT

With SoftBackup.....998.00

With Retrospect.....1098.00

NuDesign 5.0 Gig DAT

With SoftBackup.....1398.00

With Retrospect.....1498.00

The NuDesign 2.1 & 5.0 Gig Dat Drives

The NuDesign 3.5" Optical Drive

256mb in your shirt pocket at a great price!

The NuDesign 3.5" Optical is MacWorlds Editors Choice!

"Fast, inexpensive, good technical support, easy to use--this is a rare combination of qualities for a storage device." MacWorld 11/92

With the 64k read ahead cache, the short seek scanning function and a 3mbytes per second burst transfer rate you will find that these drives compete well with hard drives.

Totally Compatible ANSI/ISO Standard- Following the ANSI/ISO standard assures that your 128mb optical drive will always be able to interchange discs with other ISO standard drives.The 256 will read and write to all standard ISO disks as well

Lowest Cost per megabyte- With 3.5 optical media at only $49.00 per 128mb disc your cost per megabyte is only 38¢, a fraction of the costs of Syquest or hard disks.

Includes Hard Disk Tool Kit from FWB- This is the program recommended for Optical drives by MacWeek Editors.

NuDesign

128mb 3.5" Optical Series II.....998.00

128mb 3.5" Optical Series V.....1098.00

256mb 3.5" Optical Series X 1798.00

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00

Technical Service and Order Tracking (8:30-5:00) 312-664-8225

800•621•8462

MACDIRECT *Specialists in Mac Storage*

Fujitsu Specials

520mb Internal.....$928
1.2Gig Int.....$1398
2.4Gig Int.....$2498

- MacWorlds Editors Choice
- 5 Year Warranty
- MacWorlds fastest Gig!

MACDIRECT

Specialists in Mac Storage

Conner
The Drive That Apple Uses

For 2 years Conner has been one of Apples largest hard drive suppliers!

Conner Drives

		Internal	External
C 42 MB	3.5" LPS, 2 yr warr,150,000 MTBF	$178	$228
C 85 MB	3.5" LPS, 2 yr warr,150,000 MTBF	$218	$268
C 120 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	$278	$338
C 170 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	$298	$368
C 212 MB	3.5" LPS, 2 yr warr, 150,000 MTBF	$378	$448
C 540 MB	3.5", 8.5 ms, 4500 RPM, 2 yr Warr,	$898	$978

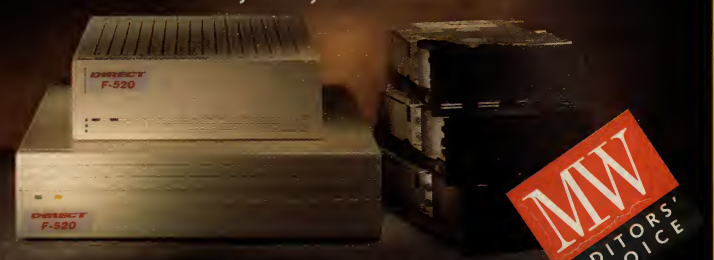
These new Conner drives are so reliable, that Conner has been one of Apples largest suppliers of drives. The 150,000 hours Mean Time Between Failure and the incredible speed of the 540 are just two reasons to buy a Conner.

Fujitsu Drives

	Internal	External
330 MB 3.5" 9ms, 5yr warr, 200,000 MTBF	$848	$898
425 MB 3.5" 9ms, 5yr warr, 200,000 MTBF, MacWorlds Editors Choice!	$898	$948
520 MB 3.5" 9ms, Fast SCSI, 5yr warr, 200,000 MTBF	$928	$998
1.1 Gig 3.5" 8.5ms, MB per sec transfer, 5yr warr, 300,000 MTBF,	$1798	$1898
1.2 Gig 5.25" 11.5ms, 5yr warr, (MacWorlds Fastest Gig!)	$1398	$1498
2.06 Gig 5.25" 11.5ms, 5yr warr, (5,400RPM & Fast SCSI)	$2348	$2448
2.4 Gig 5.25" 11.5ms, 5yr warr, (5,400RPM & Fast SCSI)	$2498	$2598

*Mean Time Between Failure is the average life expectancy of a drive.

The Fujitsu PicoBird 4 Drives
520, 425, & 330mb



Fast and Reliable!

The NuDesign 3.5" Optical
MacWorlds Editors Choice

Optical Drives

NuDesign 3.5" 256mb Optical.....$1798

NuDesign 3.5" 128mb Optical.....$998
- MacWorlds Editors Choice!, Nov. '92
- "Fast, inexpensive, good technical support, easy to use-this is a rare combination of qualities for a storage device" (MacWorld)
- Includes cartridge

Ricoh 600mb HyperSpace..$2898
- 28ms access time
- 1mb per sec transfer
- Read write reliable storage
- Includes cartridge
- Great for archiving, color scans, etc.

Toshiba 3.5" 1230mb & 877 mb

	Internal	External
Toshiba 1230mb 3.5"	$1498	$1598
Toshiba 877mb 3.5"	$1198	$1298

- 12.5ms Average Seek Time
- 256k cache
- SCSI-2
- Int.ernal for CI, Mac II,Quadra

CD ROM

Toshiba 3301.....$538
- Includes driver CD carrier and cables
- 325ms access time
- MacWorld and MacUsers Highest Rated!

Quantum Drives

	Internal	External
42mb 3.5"	$208	$278
85mb 3.5"	$258	$328
127mb 3.5"	$328	$398
170mb 3.5"	$368	$428
240mb 3.5"	$588	$658
525mb 3.5"	$1148	$1218

Prometheus Modems

Promodem 144i	Internal 14.4 Powerbook Data/Fax with V.42/V.42bis	$298
Promodem 144e	External 14.4/9600 Data/Fax with V.42/V.42bis	$298
Promodem 24e	External 2400/9600 Data/Fax with V.42 & V.42bis	$149
Promodem Mini	External, 2400bps mini unit	$89

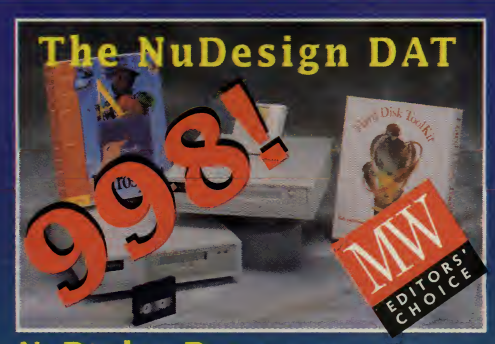
SyQuest Removables

44MB Removable.....$398.00
88MB 5110c.....$598.00
- 19ms Access time
- Both Drives include Cartridge
- 2 Year Warranty

NuDesign DAT Drives

NuDesign Dat 2.1Gig capability
With SoftBackup $998
With Retrospect.....$1098

NuDesign 5.0 Gig Compression Dat
With SoftBackup $1398
With Retrospect.....$1498



NuDesign Dat 2.1 Gig capability
With SoftBackup $998
With Retrospect $1098
- Up to 2.1 Gig per tape
- Our best buy ever on DAT!
- Up to 10 mb per minute backup time
- Available with a complete version of Retrospect

60 East Chestnut - 145, Chicago, IL 60611

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. All new drives, preformatted with latest stable system software. Factory warranty. Bracket, cables and software included. 30 Day Money back Guarantee covers drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

800-621-8462

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00

Technical Service and Order Tracking (8:30-5:00) 312-664-8225

MACDIRECT

Monitor Special

Sampo 19" Color ..$1298
- Two Page displays
- Perfect for DTP & CAD/CAM
- Include Interface cards

Trinitron 20" Color ..$1898

Full Page Display.....$398

14" Sampo Color.....$378
- Plug compatible with the IIsi, CI, and the LC

14" SONY Trinitron.....$428
- SONY 1302 for the Mac LC.

16" SONY Trinitron..$1098
- Plug compatible with the Quadra
- Plug compatible with the CI, SI and LC at 640x480

SAMPO 19" Color System 1298.00

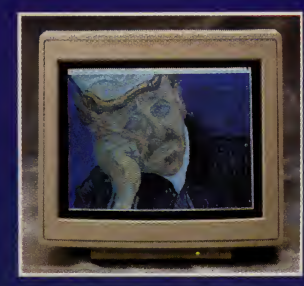
Sampo 19" 8 Bit Color System $1298.00
24 Bit Color System $1998.00
Mono System $698.00
Grey Scale System $998.00
- The SAMPO is a high quality dual page display without the high cost!
- Includes 1 bit, or 8 bit Bit Video board and cable
- 2 page display supports all Mac IIs', the SI, SE-30, SE and the LC

Trinitron 20" Color System

8 Bit Quadra compatible $1898.00

24 Bit System with RasterOps 24Li $2898.00
- RasterOps 8xl board available for all Macs
- The Trinitron-20 is a 20" monitor incorporating Sony's patented technology and one of our best buys! True Trinitron color at a great price!
- Includes 8 bit or 24 Bit Video board and cable
- 2 page display supports all Mac IIs', the SI, SE-30, and the LC

NuDesign Full Page Grey Scale $398.00
- Plug compatible with Si, Ci and Quadra (16 levels of Grey).
- Available with 1 Bit interface card for all Mac IIs' , SE-30, SE and LC $488.00.



20" Trinitron System
- 8 Bit Quadra system $1898
- With 24 Bit interface $2898

NuDesign Full Page Display
- Grey Scale for CI, SI, Quadra....$398
- II, IIfx, FX, SE30, 1Bit.....$488

19" Sampo Color System
- With 8 Bit interface $1298
- With 24 Bit interface $1998

UMAX 600 DPI Color Scanner

Umax UC-630 With *PhotoShop*.....$1098.00

Umax UC-840 With *PhotoShop*.....$1248.00

Transparency/Slide Scanner Option.....$728.00

Automatic Document Feeder $498.00
- Rated four mice by MacUser (Dec '91) ▪Rated fastest by MacUser(Dec '91)
- "Boasts the highest vertical resolution..." " Umax produced the best images..." "excel(s) in speed and color accuracy" MacUser

Umax UC-1200S With *PhotoShop* $2998.00

Transparency/Slide Scanner Option.....$798.00
- Incredible 1200 dpi scanning res. recognizes 1 billion colors internally
- Single-pass design increases scanning speed
- Includes Adobe Photoshop

Umax 600DPI Greyscale With *Typereader OCR Software, Ofoto and Publish It,* $898.00
- An incredible OCR package with over $1000 in software alone,

Scanner Special

Umax UC-630.....$1098
With Photoshop
- Rated 4 Mice by MacUser
- Rated Fastest by MacUser
- 8 1/2 x 14 Scanning area

Umax UC-12005....$2998
With Photoshop

MACDIRECT
Specialists in Mac Storage

60 East Chestnut - 145, Chicago, IL 60611

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. All new drives, preformatted with latest stable system software. Factory warranty. Bracket, cables and software included. 30 Day Money back Guarantee covers drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

800-621-8462

Hours: 8:30 - 8:00 CST,
Saturdays 10:00 - 4:00
Technical Service and Order Tracking (8:30-5:00)
312-664-8225

The drives you love from the company you trust, La Cie, a Quantum company.

Our lot has great selection

MACWORLD MW EDITORS' CHOICE

MACWORLD 1992 World Class Awards

Internal, ZFP™, ZFP+™, Cirrus™ & Tsunami™ Drives

Our hard drives features a wide selection of capacities and quality brand-name mechanisms—all at very affordable prices. All drives have switchable active termination, efficient, quiet fans and universal power supplies.*

Quantum	Internal	Closeout! ZFP	Closeout! Cirrus	Tsunami
40MB (3½")	$179	$239	$289	$339
85MB (3½")	$209	$269	$319	$369
120MB (3½")	$349	$409	$459	$509
127MB (3½")	$279	$339	$389	$439
170MB (3½")	$309	$369	$419	$469
240MB (3½")	$419	$479	$529	$579
525MB (3½")	$939	$999	$1049	$1099
700MB (3½")	$1199	$1259	$1309	$1359
1.05GB (3½")	$1339	$1399	$1449	$1499
1.2GB (3½")	$1589	$1649	$1699	$1749
80MB (2½") for Powerbook	$299	See PocketDrive		
120MB (2½") for Powerbook	$449	See PocketDrive		
160MB (2½") for Powerbook	$549	See PocketDrive		

Seagate	Internal	ZFP+
1.6GB (5¼")	$2299	$2449
2.1GB (5¼")	$2949	$3099
2.4GB (5¼")	$3299	$3449

HP	Internal	ZFP+
1.6GB (5¼")	$2459	$2609

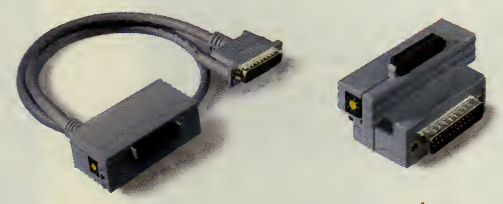
MACWORLD MW EDITORS' CHOICE

MACWORLD 1992 World Class Awards

PocketDrive™

Pack it in your pocket, purse or briefcase. PocketDrives offer convenient desktop connection at a great price.

40MB (2½") incl. T-connector	$299
80MB (2½") incl. T-connector	$499
120MB (2½") incl. T-connector	$599
160MB (2½") incl. T-connector	$729



Optional PocketDock Cable	$59
Extra T-Connector	$59
110V Accessory Kit	$69

Powerbook Internals

Pack more power in your Powerbook. Comes with brackets and instructions.

80MB Powerbook Internal	$299
120MB Powerbook Internal	$449
160MB Powerbook Internal	$549

Silverlining™

Hailed as one the most powerful and useful hard disk management software available, Silverlining offers unique features found no where else! Give your hard disk a Silverlining.

Silverlining	$149

and a friendly sales staff.

FREE! Cleaning Cartridge $19.95 value*

Cirrus Optical

Our quiet Cirrus Optical drives offer 128MB removable media storage, compact portability and fast 38ms performance. Includes one free cartridge ($79 value).

	Internal	External
128MB 3½" Optical	$1399	$1499
Drive with Retrospect	$1499	$1599
128MB Optical Disk		$79

*While supplies last

Cirrus Backup

Our Cirrus backup solutions have the power to handle large backup jobs. Includes Retrospect™ and 1 free tape.

	Internal	External
155MB Tape Drive		$629
600MB Tape Drive	$799	$919
1.3-2.0GB DAT	$1439	$1559
4-8GB Comp. DAT	$1549	$1649

88C Now Available!

ZFP Removable

Our 44-88MB removable media drives deliver Syquest technology in a zero footprint case. Includes 1 free cartridge.

44MB Drive	$599
88MB Drive (88C)	$719
44MB Cartridge	$79
88MB Cartridge	$119

ExpressDrive™

Here's tight security and portability. La Cie Express Drives offer removable drive convenience and Quantum quality.

ExpressDrive Chassis	$399
50MB Quantum LPS Drive	$349
100MB Quantum LPS Drive	$419
120MB Quantum LPS Drive	$469
240MB Quantum LPS Drive	$819

Silverscanner II™

One look at the image above should convince you that our next generation Silverscanner can really perform! Superior line art, detailed gray-scale and gorgeous color are the trademarks of this one pass, 24bit, high resolution, feature-packed scanning machine. Just scan it!

La Cie Silverscanner II	
with Color It! and Read-It O.C.R. Pro!	$1599
with Photoshop and Read-It O.C.R. Pro!	$1999
with Photoshop, ColorStudio and Read-It O.C.R. Pro!	$2099
La Cie Silverscanner	**Closeout!**
with Color It! and Read-It O.C.R. Pro!	$999
with Photoshop and Read-It O.C.R. Pro!	$1349
with Photoshop, ColorStudio and Read-It O.C.R. Pro!	$1449

BEST! Macworld Hard Drive under 80MB

BEST! Macworld Hard Drive 80-200MB

BEST! Macworld Hard Drive over 200MB

BEST! Macworld Color Scanner Silverscanner

FCC Certified!

TOLL-FREE! Technical Support

TOLL-FREE! Customer Service

FREE! Silverlining™

Switchable Termination!

Universal Power Supply!

30 Day Money Back Guarantee*

Test us for real and call now for fast, friendly service!

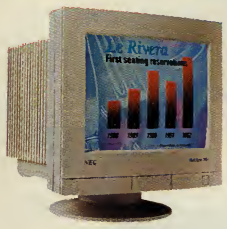
800-999-1388

LA CIE LIMITED
A QUANTUM COMPANY

*International 503-520-9000 Fax 503-520-9100 6 a.m.-6 p.m.PST Mon.-Fri. VISA, MasterCard, C.O.D. and approved purchase orders accepted**

*Call for details on terms, conditions, limited money back guarantee and free offers. System 7.0.1 software included only with certain configurations. ZFP+ Drives do not have switchable termination. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact La Cie for international distribution. Add sales tax where applicable. ZFP, ZFP+, Cirrus, Tsunami, PocketDrive, PocketDock, ExpressDrive, Silverscanner, Silverscan, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. © Copyright 1992-93 La Cie, Ltd. 8700 SW Creekside Place, Beaverton, OR 97005. Phone: (503) 520-9000, Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

USA FLEX...For Great MAC Peripherals!



NEC MultiSync® Monitors

All NEC monitors include Tilt/swivel base and are Mac® II/Quadra family compatible (w/ cable adapter)

3FGx™ 15" Monitor — $609

- 1024 X 768 **Non-interlaced** @ 60 Hz
- .28mm Trio dot pitch
- 65 MHz max. video bandwidth

D1-NEC3FGX SRP $799
MAC CABLE PART # *F1-MACADP*

4FG™ 15" Monitor — $709

- 1024 X 768 **Non-interlaced** @ 70 Hz
- .28mm Trio dot pitch
- 75 MHz max. video bandwidth

D1-NEC4FG SRP $949
MAC CABLE PART # *F1-MACADP*
4FG + MacFG™ 8X display interface card $1359
4FG + MacFG™ 24X display interface card $1919

5FG™ 17" Monitor — $1249

- 1280 x 1024 **Non-interlaced** @ 74 Hz
- .28mm Trio dot pitch
- 135 MHz max. video bandwidth

D1-NEC5FG SRP $1599
MAC CABLE PART # *8325FG*
5FG + MacFG™ 24X display interface card $2459

6FG™ 21" Monitor — $2299

- 1280 x 1024 **Non-interlaced** @ 74 Hz
- .28mm Trio dot pitch
- 135 MHz max. video bandwidth

D1-NEC6FG SRP $2899
MAC CABLE PART # *8325FG*
6FG + MacFG™ 24X display interface card $3499

SONY

CPD-1304 14" Multiscan® Trinitron® Color Monitor — $569

- 1024 x 768 **Non-interlaced**
- .25mm Trio dot pitch
- 50MHz bandwidth (typical)

D1-S1304

CPD-1604S 17" Multiscan® Trinitron® Color Monitor — $1049

- 1024 x 768 **Non-interlaced**
- .25mm Trio dot pitch
- 60MHz bandwidth (typical)

D1-S1604 SRP $1700
MAC ADAPTER *TMACSTD* $16.95

NEC MacFG™ 8X/24X Color Display Interface Card

Combine the MacFG 8X or 24X with a MultiSync® FG™ monitor for the ultimate graphics subsystem for your Macintosh computer.

MacFG 8X $659 — *FG8X* SRP $799
MacFG 24X $1229 — *FG24X* SRP $1499

EPSON

ES-600C $799
ES-800C $1099
Color Scanners

- 24-bit "TruePass" scanning capable of producing over 16.6 MILLION colors!
- ES-600C - SCSI I/F, 300 DPI
- ES-800C - SCSI & BIDI I/F, 400 DPI
- Optional Automatic Document Feeder and Transparency Unit

MAC Interface Kit: $289
- Adobe® Photoshop® 2.0
- PIM and DA Cable
- Epson's Apple scanner driver

Interface kit is required (Sold separately)

*Than the Epson ES-300C

SPECIAL OF THE MONTH — EPSON

EPL-7500 POSTSCRIPT™ LASER PRINTER
Incredible PostScript Price

The powerful EPL-7500, PC World's "Best Buy" and Info World's #1 PostScript laser printer!

- 6 pages per minute
- Adobe® PostScript with 35 typefaces
- Weitek XL-8200 series RISC processor
- 2MB memory, expandable to 6MB
- Parallel, serial, and AppleTalk® interfaces
- HP LaserJet Series II emulation
- 250 sheets input capacity

$799 NEW LOW PRICE — *B1-EPL7500*

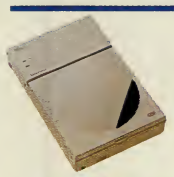
NEC Silentwriter® Model 95 — $1359

- 6 PPM PostScript® Level 2 and PCL 5
- AppleTalk/Parallel/Serial
- Automatic Emulation Switching
- 250 Sheets and built-in 15 envelope feeder

B1-NEC95 SRP $1749

NEC Silentwriter Model 95fx — $1849 NEW!

Same as above with built-in plain paper send/receive fax capability. *B1-NEC95FX*



NEC Intersect™ CD/ROM CDR-37 — $439

- Fast 450ms access time
- 150 KB/second data transfer rate
- 64 KB cache memory
- Optional battery pack for portable operation
- 2 year manufacturer's warranty
- Includes MAC interface kit

D1-CDR-37 & CD-MA002

NEC Intersect™ CD/ROM CDR-74 with MultiSpin™ — $619

- **280ms - Fastest Access Time Available**
- 300 KB/second data transfer rate
- 64 KB cache memory
- Standard dust brush for added dust protection
- Includes MAC interface kit
- 2 year manufacturer's warranty

D1-CDR-74 & CD-MA002

MAC CD/ROM SOFTWARE TITLES

Desert Storm *CDM-DESERT*	$29*	$39
Family Doctor *CD-DOCTOR*	$45*	$55
Interactive Storytime Vol. 1 *CDM-INSTORY*	$29*	$49
Orient *CDM-ORIENT*	$29*	$49
Sherlock Holmes *CDM-SHER*	$29*	$49
Toolworks Multimedia Enc. *CDM-ENC*	$49*	$239
Total Baseball *CD-TBASE*	$49*	$55
U.S. Atlas V 2.11 *CDM-ATLAS*	$29*	$39
U.S. History *CDM-USHIST*	$29*	$229
World Atlas V 2.1 *CDM-WORLD*	$25*	$49

*When purchased with CD-ROM drive shown above

IBM® Personal Printers for Macintosh® by Lexmark™

1991 - WINNER - PC Magazine Award for Technical Excellence — PRINTERS — IBM LaserPrinter 10 — Lexmark International, Inc.

PC MAGAZINE EDITORS' CHOICE — November 26, 1991 — IBM LaserPrinter 10

True 600 dpi output...for under $2000!

IBM® LaserPrinter 6A — $1529

- Adobe® PostScript® software built in
- 300 dpi with PQET, Max. 600 dpi w/optional memory
- 10 MHz • 3MB • Up to 6 ppm
- AppleTalk®, Rasterport interface
- 39 Adobe® Type 1 scalable fonts
- 200 sht. paper cass.

4029021 SRP $2199

IBM® LaserPrinter 10A — $1959

- Adobe® PostScript® software built in
- 600 dpi with PQET • 16.7 MHz • 5MB
- AppleTalk®, Rasterport interface
- 39 Adobe® Type 1 scalable fonts
- Up to 10 ppm

4029041 SRP $2799
Printers require MAC cable. Call for price.

Optional Accessories Available - CALL

Dataproducts

LZR™ 960 Adobe® PS Level 2 Laser Printer

- RISC-based Processor
- 300 dpi • 2MB • 9 PPM
- 35 resident typefaces
- LocalTalk/RS-422, Centronics parallel, RS-232-C serial & SCSI interface — $1399

B1-LZR960-001

LZR 1560 Ledger/A3 Laser Printer — $2999

- 11 x 17" Imaging • Max. 400 dpi res.
- PostScript® Level 2 from Adobe® • 4MB
- 35 resident typefaces • Max 15 PPM

Both printers require MAC cable. Call for price.
B1-1560-002

FLEXfax

Our New Automated Fax Retrieval System

Information At Your Fingertips, 24 Hours A Day, 7 Days A Week.

FLEXFAX (708) 351-5419

USA FLEX TO ORDER: 1-800-678-0354

USA FLEX FAX # (708) 351-7204
Gov./Education Sales 1-800-695-0249
Gov./Education FAX 1-708-351-9871
Habla Espanol
1-800-723-5500 or (708) 924-6780
Pour les Francophones
1-800-723-2256 or (708) 582-6179

OPEN 24 HOURS MONDAY THRU FRIDAY SAT. & SUN. 9 AM. to 4 P.M.

Minimum Order $80. MasterCard, Visa, Discover and Flex Cards accepted for sales in continental USA, Alaska, Hawaii and FPO. (A $10.00 surcharge on credit card order for FPO). Leasing available for qualified businesses. Shipping and handling additional. Corporations rated 1A1 or better and government accepted for Net 30 basis with receipt of a purchase order. C.O.D. order under $500.00 add $5.00, over $500.00 add $10.00 check warranty charge. Call for special UPS Red and UPS Blue C.O.D. rates. Call for PAL rates. AK, HI, Puerto Rico, APO and FPO add 5% to cover additional shipping and handling costs. All returns must have prior authorization from our Customer Service Department. (708) 351-7172. All returns must be in original packaging and include all warranty cards and manuals. Incomplete product, returns, unauthorized returns and refused shipments are subject to a 20% restocking charge. All prices and specifications are subject to change without notice. $11.95 minimum shipping and handling. IBM is a registered trademark of International Business Machines Corporation in the United States and/or other countries and is used under license. OS/2 is a registered trademark of International Business Machines Corporation in the United States and/or other countries. PostScript and Adobe are registered trademarks of Adobe Systems, Incorporated, registered in the United States. Apple, Macintosh and AppleTalk are registered trademarks of Apple Computer, Inc., in the United States and other countries. Lexmark is a trademark of Lexmark International, Inc. PC Magazine Technical Excellence Logo Copyright © 1991, Ziff Communication Company. PC Magazine Technical Excellence Logo is a trademark of Ziff-Davis Publishing Company. Please refer to code numbers when placing an order. Please refer to code numbers when placing an order.

471 Brighton Drive, Bloomingdale, IL 60108

Code #MW0301

Attention all Macintosh professionals in:

Zimbabwe

England

Ivory Coast

Saudi Arabia

Luxembourg

Spain

Japan

Italy

France

Chile

Nigeria

Germany

Lithuania

Morocco

Switzerland

Around the World

MacWEEK

Now you can get MacWEEK delivered via airmail — direct from the publisher — no matter where you are!

Subscriptions to MacWEEK are now available straight from the source* — and you'll get them fast. Each information-packed issue will arrive within 5 to 7 days of the issue date. For just US$300 a year, you'll get nonstop, up-to-the-minute Mac news from the only weekly news journal written expressly for Macintosh managers.

Whether you're in Timbuktu, East Croydon or Dar-es-Salaam, you'll find that a year's worth of MacWEEK can translate to huge savings for you and your company, on all your Mac-related purchases and business decisions. **Subscribe today.**

*Subscriptions no longer available through MacVonk.

MacWEEK SUBSCRIPTION ACCEPTANCE FORM

YES, please enter my one-year (44-issue) subscription to MacWEEK for US$300.00, payable in U.S. funds. I understand that I am entitled to a full refund on all unmailed issues if I should choose to cancel my subscription.

Name

Company

Address

City Postal Code

Country

Please allow 4 to 6 weeks for delivery of first issue. No bank transfers accepted.

PLEASE CHOOSE ONE:

☐ Payment of US$300.00 enclosed.

☐ Charge my credit card.

☐ Visa ☐ MasterCard ☐ American Express

Account No.

Expiration Date

Signature

RETURN FORM TO:
MacWEEK Circulation – 5th Floor
One Park Avenue • New York, NY 10016
U.S.A.

OR YOU MAY FAX YOUR ORDER TO:
(212) 503-5335

We Have C

LOCALTALK

TELECOMMU

Four connectors for the price of one!

You can buy four TurboNet ST™ LocalTalk™ connectors for the price* of one Farallon PhoneNet connector! TurboNet is plug and play connectivity using standard phone cable. Unique traffic indicator lights give you instant feedback about signal presence and strength. It's 100% compatible with all PhoneNET™, LocalTalk, and other third-party connectors.
*price verified 1/2/93
$99.99 in ten packs.
$399.99 in fifty packs.
Product # 10 1008

LED activity lights show network signal activity. If you ever have to trace a dead node, you'll appreciate activity lights.

Self-terminating distributed Signal Dependent Damping™ automatically absorbs reflected signals to take the work out of maintaining your network.

ONLY $12.99
TurboNet

At $28 per port, your ship just came in.

The TurboStar™ active hub is a smart LocalTalk Hub at an even smarter price. Its 16 ports support up to 64 users and it interfaces easily with existing twisted pair networks. Includes advanced management software and the new Net Utilities by Tech Works for complete network analysis.

TurboStar features auto disabling of individual ports that become jammed by faulty signals, and auto-reconnect to bring the port back on line. This means less time spent troubleshooting by network managers. With a cost of about $28 per port, the TurboStar is the Starship you have been waiting for.

ONLY $449.99
TurboStar

Product # 20 1600

Built-in Motorola 68000 for high-speed processing.

Red and green LED indicators let you quickly check the status of all network ports.

FREE!

Free with TurboStar: Net Utilities Software by Techworks, a $129 value, plus MacWorld Networking Handbook, a $29 value.

"Easy to interface... excellent software."
MacWeek

A screaming-fast 14.4Kbps external Fax/Modem

The 14.4 Fax/Modem is a Group 3-compatible, external send and receive fax/ modem — tests show it to be among the very fastest of Hayes-compatible 14.4 modems. It offers 14.4 Kbps fax send and receive speeds with up to 57.6 Kbps data speeds, with auto fallback to slower speeds. Features a full suite of data correction and compression protocols including v.32, 32bis, v.42 and 42bis and comes with the best Fax software on the market. Internal PowerBook modem available. 24/96 modem also available.

Product # 90 2000 External
Product # 90 2400 Internal PB

ONLY $299.99
14.4 Fax/Modem

Internal version for PowerBooks available at the same low price.

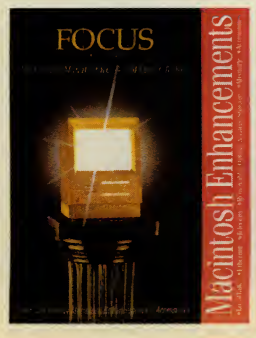
Front panel LEDs

Includes free FAX^{stf}™ and QuickLink II™ software, plus all cables.

Works great in combination with the Focus Rand•E!

Our connectivity prices are the lowest.

no middlemen • no retail stores • no distributors • no reps • no brokers • no kidding!



Free Buyer's Guide

Call today for our latest catalog with over 200 quality enhancements for the Macintosh.

800•538•8866

How to Order: Our Customer Advisors will help you Monday thru

500 POs, Government and University POs (approved), business

Cummings Park, Woburn, MA 01801 • 617-938-8088,

©1993 Focus Enhancements, Inc. All rights reserved. Focus, EtherLAN,

onnections

NICATIONS

Dial in to Ethernet with Rand•E and AppleTalk Remote Access.

The revolutionary Rand•E (Remote Access Network Device for Ethernet) and System 7 let you use AppleTalk Remote Access (ARA) to dial and connect to EtherTalk networks via any standard modem. Rand•E is fully out-of-the-box compatible with the Focus 14.4 Fax/Modem as well as a list of over 32 others. Simple scripts allow you to use virtually any Hayes-compatible modem. Advanced configuration software allows for tight security on your network. Own a PowerBook or a Mac away from the office? With ARA and Rand•E you've got the best connections. Product # 90 1100 10BaseT only (Thick, Thin and International versions available.)

ONLY
$1299
Rand•E

Does anyone really read the small print? We're giving the first 50 callers who mention this offer a free Focus mug.

Front panel LEDs display operational status.

Remote Access Network Device for Ethernet.

Up to three Macs can dial in to Ethernet at the same time.

ETHERNET

We offer Thick/Thin and Thick/10BaseT NuBus boards also for $99.99!

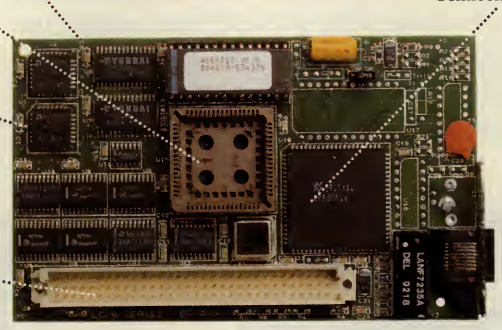
All LC and IISi EtherLAN cards include an FPU socket.

At only $99.99, it's as affordable as it is compatible.

You'll be sending files and accessing network services in minutes with this easy to use plug-and-play board.

WOW!
ONLY
$99.99
EtherLAN LC Thin

Features the ST-NIC™ chip from National Semiconductor.



Make the move to Ethernet now.

The EtherLAN LC Network Interface Card lets you gain full connectivity to the Ethernet world, or just do more, faster, in your office. All of our Ethernet boards are fully Apple register compatible and can use Apple's own Ethernet drivers for future compatibility with Apple System updates. Every board features advanced surface mount technology and the latest Ethernet chips from National Semiconductor. With the two media Ethernet LC you can quickly change from one Ethernet media to another without re-installing a board.

Product # 60 3000
(10BaseT also available.)

Ethernet through your SCSI port! Focus on that!

Now there's an easy way to connect your PowerBook, IIsi, LC, Classic, SE, Plus, or Portable to high-speed Ethernet: through your SCSI port.
Fully compatible with Thick, Thin and 10BaseT networks, the EtherLAN SC and SC-T adapters install quickly and easily. For Mac PowerBooks, HDI SCSI cables are available. The EtherLAN SC has thick (AUI) and thin (BNC) connectors, while the SC-T has thick and 10BaseT (RJ-45) connectors. Get the high-speed benefits of Ethernet today, and save a slot!
Product # 60 1000

ONLY
$199.99
EtherLAN SC

This easy-to-use SCSI interface provides true Plug and Play connectivity in minutes.

Doesn't take up a slot in your Mac like other Ethernet options, so it's great for PowerBooks and single slot Macs.

"The fastest of the SCSI adapters"
MacUser

Our connectivity products are the best.

best guarantee • best prices • best warranty • best service • best in the business!

Friday 7am to 8pm, Sat & Sun 11 to 5 Eastern Standard Time. We accept VISA, MasterCard, American Express, Discover, Fortune and personal checks (with check approval), Cashiers checks, Money Orders, and COD. •Focus Enhancements, Inc. 800 West fax 938-7741 Ask about our educational, user group and developer discounts.

EtherLAN LC, EtherLAN A1-II, EtherLAN SC, are trademarks of Focus Enhancements, Inc. All prices and items are subject to change and availability.

FOCUS
enhancements

1-800-258-2622 1-800-CLUBMAC

Quantum

GO•Drives have 32k cache, low power consumption, MTBF of 150,000 hours, and ONE Year Warranty. ELS drives have 32k cache, low power consumption, MTBF of 250,000 hours and TWO Year Warranty. LPS drives have 64k-256k cache, MTBF of 250,000 hours, and TWO Year Warranty. PRO drives have 256k cache, MTBF of 150,000 hours, and TWO Year Warranty.

Unformatted Capacity	Model	Access Time	Actual MAC Capacity	Internal	External
GO•DRIVE (2.5" HARD DRIVES DESIGNED FOR NOTEBOOKS)					
80mb	GO80	17ms	80mb	$325	$425
120mb	GO120	17ms	120mb	$435	$535
ELS SERIES (3.5" LOW PROFILE AND LOW POWER)					
42mb	ELS42	19ms	40mb	$175	$235
85mb	ELS85	17ms	82mb	$215	$275
127mb	ELS127	17ms	124mb	$289	$349
170mb	ELS170	17ms	160mb	$319	$379
LPS SERIES (3.5" LOW PROFILE)					
105mb	LPS105	11ms	100mb	$255	$315
240mb	LPS240	10ms	234mb	$439	$499
525mb	LPS525	10ms	500mb	$939	$999
PRODRIVE SERIES (3.5" HALF HEIGHT)					
425mb	PRO425	9ms	406mb	$879	$939
700mb	PRO700	10ms	670mb	$1195	$1255
1.0GIG	PRO1050	10ms	1001mb	$1365	$1425
1.2GIG	PRO1225	10ms	1165mb	$1595	$1655

*6300 RPM!!

Maxtor

Unformatted Capacity	Model	Access Time	Actual MAC Capacity	Internal	External
XT SERIES (3.5" LOW PROFILE)					
120mb	7120S	15ms	121mb	$259	$319
207mb	7213S	15ms	202mb	$379	$439
LXT & MXT SERIES (3.5" HALF HEIGHT)					
330mb	LXT-340	15ms	324mb	$625	$685
FAST!! 535mb*	MXT-535	8.5ms	521mb	$999	$1059
FAST!! 1240mb*	MXT-1240	8.5ms	1150mb	$1659	$1719
PANTHER SERIES (5.25" FULL HEIGHT)					
1.2GIG	PO-12S	13ms	997mb	$1419	$1519
1.7GIG	P1-17S	13ms	1433mb	$1719	$1819

Maxtor 3.5" drives carry a ONE Year Warranty. Maxtor 5.25" drives carry a TWO Year Warranty.

Seagate

FREE ATTO SCSI-2 CONTROLLER CARD
WITH ELITE DRIVE PURCHASE
(WHILE SUPPLIES LASTS)

Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
3.5" DISK DRIVES						
248mb	ST3283N	Low Profile	12ms	235mb	$479	$539
1.2GIG	ST11200N	Half Height	10.5ms	1000mb	$1535	$1595
WREN AND ELITE SERIES (5.25" FULL HEIGHT)						
645mb	ST4767N	Wren Runner II	11.9ms	634mb	$1519	$1619
1.2GIG	ST41200N	Wren-7	15ms	989mb	$1375	$1475
1.6GIG	ST41651N	Wren-8	15ms	1350mb	$1715	$1815
2.1GIG	ST42100N	Wren-9	12.9ms	1900mb	$1935	$2035
1.6GIG	ST41600N	Elite-1	11.5ms	1307mb	$1999	$2099
2.4GIG	ST42400N	Elite-2	11ms	2050mb	$2879	$2979
3.4GIG	ST43400N	Elite-3	11ms	2750mb	$3929	$4029

Seagate drives carry a ONE Year Warranty.

FIVE YEAR WARRANTY

FUJITSU

Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
425mb	M2623FA	3.5" Half Height	9ms	405mb	$895	$955
520mb	M2624FA	3.5" Half Height	9ms	496mb	$945	$1005
NEW 1.1GIG	M2694	3.5" Half Height	8.5ms	995mb	$1795	$1895
1.2GIG	M2266	5.25" Full Height	14.5ms	1029mb	$1395	$1495
2.0GIG	M2652	5.25" Full Height	14.5ms	1665mb	$2295	$2395
NEW 2.4GIG	M2654	5.25"Full Height	11.5ms	2000mb	$2519	$2619

HEWLETT PACKARD

FIVE YEAR WARRANTY

Unformatted Capacity	Model	Access Time	Actual Mac Capacity	Internal	External
3.5" HALF HEIGHT DRIVES					
234mb	C2233	12.6ms	223mb	$799	$859
422mb	C2235	12.6ms	402mb	$1049	$1109
1.2GIG	C2247	10.5ms	1000mb	$1955	$2015
5.25" FULL HEIGHT DRIVES					
677mb	97556	13.5ms	633mb	$1465	$1565
1.2GIG	97558	13.5ms	1020mb	$1665	$1765
1.6GIG	97560	13.5ms	1292mb	$1995	$2095
2.4GIG	CP3010	11.5ms	2000mb	$2999	$3099

1-800-258-2622 1-800-CLUBMAC

ClubMac 88c will allow you to read and write both 44mb and 88mb cartridges. Finally, there's one simple solution. Buy the drive that will offer complete compatibility with all SyQuest based cartridges. Buy the ClubMac 88c.

ClubMac SyQuest Dual Drives offer users the most convenient way to exchange data between cartridges.

Internal SyQuest Technology, essential for every Quadra 900/950, IIvx, IIvi and Performa 600 user, is available from ClubMac TODAY!

CLUBMAC 88c REMOVABLES*

ClubMac 88c External (SQ5110C)	$589
ClubMac 88c Internal	$559
ClubMac 88c Dual	$1079

* ClubMac 88c will read and write 44mb cartridges, but will not format 44mb cartridges.

CLUBMAC 44MB REMOVABLES

ClubMac 44mb External (SQ555)	$385
ClubMac 44mb Internal	$345
ClubMac 44mb Dual	$725

CLUBMAC 88MB REMOVABLES

ClubMac 88mb External (SQ5110)	$489
ClubMac 88mb Internal	$469
ClubMac 88mb Dual	$895

SYQUEST CARTRIDGES

44mb Cartridge	$63
88mb Cartridge	$97

NEW SyQuest 88c

FEATURING

SyQuest® REMOVABLE TECHNOLOGY

SyQuest Drives include
- TWO Year Warranty
- One cartridge and necessary cables
- SCSI Director™ Formatting Utility

SyQuest Cartridges carry a ONE Year Warranty.

CONNER

Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
85mb	CP30080E	3.5" Low Profile	17ms	82mb	$225	$285
120mb	CP30100	3.5" Low Profile	19ms	116mb	$279	$339
170mb	CP30170E	3.5" Low Profile	15ms	160mb	$315	$375
212mb	CP30200	3.5" Low Profile	12ms	206mb	$425	$485
540mb	CP30540	3.5"Half Height	8.5ms	515mb	$979	$1039

Conner drives carry a ONE Year Warranty.

FIVE YEAR WARRANTY

MICROPOLIS

Unformatted Capacity	Model	Description	Access Time	Internal	External
1.0GIG	2112	3.5" Half Height/Fast SCSI-2	10ms	$1699	$1759
2.0GIG	1924	5.25" Full Height/Fast SCSI-2	11.5ms	$2849	$2949

ClubMac OPTICAL Drives

Model		Capacity	Description	Seek	External
CMO-OD3000	Teac	128mb	3.5" Half Height	45ms	$999
CMO-LF3004	Panasonic	128mb	3.5" Half Height	45ms	$1129
CMO-3100E	Ricoh	128mb	3.5" Half Height	45ms	$1089
CMO-5031E	Ricoh	594/652mb	5.25" Full Height	28ms	$2385
Tahiti II	MaxOptix	650mb/1.0GIG	5.25" Full Height	35ms	$3269
128mb Cartridge		3.5" Single Sided			$39
594/652mb Cartridge		5.25"-512/1024 bytes/sec			$99

All ClubMac Opticals include ONE cartridge and ONE Year Warranty.

GREAT Media PRICES

60 meter DAT	$13
90 meter DAT	$16
CT600N	$19
CT600F	$28
Exabyte 8mm	$18

ClubMac TAPE BACKUP Systems

Capacity	Model	Description	Media	Internal	External
155mb	Teac MT2ST/N50	Analog	CT600N	$469	$489
600mb	Teac MT2ST/F50	Analog	CT600F	$669	$689
2.0GIG	ARDat	DAT, DDS	4mm	$1165	$1185
2.0GIG	WangDAT 1300XL	DAT, DDS	4mm	$1249	$1269
3-5GIG	WangDAT 3200	DAT, DDS-DC	4mm		$1489
2.0GIG	HP 35470A	DAT, DDS	4mm	$1329	$1349
3-5GIG	HP 35480A	DAT, DDS-DC	4mm	$1529	$1549
2.2GIG	Exabyte EXB-8200	Digital/Helical	8mm		$1859
5.0GIG	Exabyte EXB-8500	Digital/Helical	8mm		$2849

Tape BackUp Systems include RetroSpect v.1.3c Backup Software, ONE cartridge and ONE Year Warranty.

ClubMac

1-800-258-2622

3 Musick • Irvine, CA 92718

Sales, Info, Int'l (714)768-8130
Tech Support (714)768-1490
24-Hour Fax (714)768-9354

1-800-258-2622 CLUBMAC 1-800-258-2622

1-800-258-2622 1-800-258-2622 1-800-CLUBMAC

HP SCANJET IIc COLOR SCANNER $1295

- 400 dpi (800 dpi via interpolation) single-pass scanning delivers superior image quality in both 24-bit color and 8-bit grayscale modes
- Exclusive HP AccuPage technology improves OCR accuracy
- Both image and text scanning mean maximum versatility
- Print-path calibration optimizes scan settings for selected printer
- Automatic Document Feeder $499

ASK ABOUT $100 REBATE ON HP SCANJET IIC AUTO. DOC. FEEDER

ScanTastic™ ps for the HP ScanJet IIc $69

HP SCANJET IIp GRAYSCALE SCANNER $695

- 300dpi optical resolution delivers accurate, detailed scans
- 8-bit grayscale provides high-quality reproductions of photographs and illustrations
- Exclusive HP AccuPage technology improves text recognition and formatting
- Print-path calibration optimizes scan setting for selected printer
- Automatic Document Feeder $279

ASK ABOUT $50 REBATE ON HP SCANJET IIp AUTO. DOC. FEEDER

HEWLETT PACKARD
Authorized Scanner Dealer

EPSON

EPSON ES-600C 1200 dpi

- 300 X 300 dpi optical resolution, 1200 dpi via interpolation
- Epson's TruePass Scanning System (single or multi-pass)
- 8-bit grayscale and 24-bit color scanning

ES-600C with ScanTastic $945
ES-600C with Full Photoshop & ScanTastic $1215

EPSON ES-800C 1600 dpi

- 400 X 400 dpi optical resolution, 1600 via interpolation
- Epson's TruePass Scanning System (single or multi-pass)
- 8-bit grayscale and 24-bit color scanning

ES-800C with ScanTastic $1229
ES-800C with Full Photoshop & ScanTastic $1499
Automatic Document Feeder $465
Transparency Unit $765

MICROTEK

SCANMAKER II $899

- Up to 1200 dpi resolution via interpolation
- 24-bit color/8-bit grayscale
- Bundled with Adobe Photoshop LE

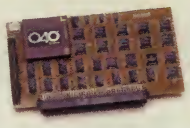
SCANMAKER IIXE $1179

- Up to 1200 dpi resolution via interpolation
- 24-bit color/8-bit grayscale
- Bundled with FULL Adobe Photoshop

Auto Document Feeder $479

DAYSTAR DIGITAL

100% Compatible — 30 DAY MONEY BACK GUARANTEE — 3 Year WARRANTY



33MHz TURBO 040

100% compatible with any software that runs on a Quadra and any hardware that runs on a Mac IIci.

33 MHz TURBO 040 $1349
FASTCACHE TURBO 33-128K ADAPTER $345
CHARGER $795

POWERCACHE

(Classic, SE, LC, SE/30, II, IIx, IIcx, IIsi, IIci, IIvx, Performas)

* Cache Adapter not included	w/o FPU	w/ FPU
33 MHz PowerCache*	$385	$475
40 MHz PowerCache*	$555	$645
50 MHz PowerCache*	$729	$859
Equalizer LC	$169	$239
PowerCache Adapter	$40	

CACHE CARDS

FastCache IIsi / with 68882	$279 / 349
FastCache IIci	$215
FastCache 040 (128K - Q700/900)	$259
FastCache 040 (128K - Q700/900/950)	$399

EXPANSION BOARDS

DualPort IIsi	$165
PowerMath LC	$115

MEMORY...

STANDARD MAC

1mb X 8 SIMMS	$32
2mb X 8 SIMMS	$62
4mb X 8 SIMMS	$129
4mb with PAL SIMMS	$135
8mb SIMMS	$279
8mb SIMMS for Q700	$299
16mb SIMMS	$525
16mb Low Profile SIMMS	$565

VIDEO RAM

256K VRAM for Quadras	$25
512K VRAM for LC, LCII, IIvx	$49

MAC IIFX

1mb X 8 SIMMS	$36
4mb X 8 SIMMS	$129
8mb SIMMS	$285
16mb SIMMS	$549

CENTRIS 610/650

4mb Memory Module	$149
8mb Memory Module	$299
16mb / 32mb Memory Module	$Call

QUADRA 800

4mb Memory Module	$159
8mb Memory Module	$309
16mb / 32mb Memory Module	$Call

POWERBOOK 140/145/170

6mb Memory Module	$205

POWERBOOK 160/180

4mb Memory Module	$175
6mb Memory Module	$255
8mb Memory Module	$325
10MB Memory Module	$429

POWERBOOK 165 DUO 210/230

4mb Memory Module	$205
8mb Memory Module	$319

NEC SILENTWRITER

2mb Memory Upgrade	$99

APPLIED ENGINEERING

Powerbook Battery Conditioner Recharger	$129
Axcell Cellular Phone Connection	$265
Datalink (PB 140/145/170)	$129
Datalink (PB 160/180)	$129
3.5" 1.44MB External Floppy Drive	$209
Plus Drive Super Floppy for Plus, SE, Mac II	$295
Fastmath LC w/68882 16MHZ FPU	$105
Quadralink Multi-Serial NuBus Board	$195

NETWORKING...

Dayna

Etherprint ENET to LocalTalk (Built-in Thin BNC & AUI)		$325
Etherprint Plus Multi Dev Support (Thin BNC & AUI)		$425
Etherprint T Plus Multi Dev Support (10BaseT)		$425
Etherprint-T ENET to LocalTalk (10BaseT)		$325
DOS Mounter 3.0		$49
Daynaport SCSI/Link-3 PB ENET		$329
Daynaport SCSI/Link-T PB ENET		$285

MODEMS...

FIVE YEAR WARRANTY

SUPRAFAXMODEM $349
14.4 S/R fax, 14.4 modem v.32bis, v.42bis, MNP 5 w/FaxST, Microphone& Software

PowerModem I	(24/96/48 S/R fax modem)	$129
PowerModem II	(24/96/96 S/R fax modem)	$225
PowerModem III	(96/96 S/R fax modem)	$325
PowerModem IV	(14.4/14.4 S/R fax modem)	$379

US Robotics Sportster 14.4 Mac & Fax $349

GLOBAL VILLAGE

POWERPORT (Internal PowerBook Fax/Modems)

PowerPort Bronze	(24/96 S/R fax modem)	$179
PowerPort Silver	(96/96 S/R fax modem)	$359
PowerPort Gold	(14,400 S/R fax modem)	$419

TELEPORT (External Desktop Fax/Modems)

Teleport Bronze	(24/96 S/R fax modem)	$189
Teleport Silver	(96/96 S/R fax modem)	$359
Teleport Gold	(14,400 S/R fax modem)	$419

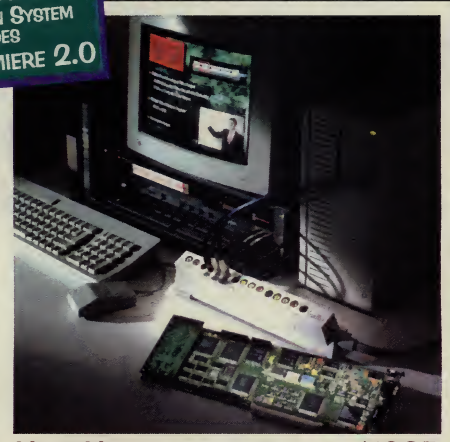
ASANTÉ

5 YEAR WARRANTY

Mac SE (68000 PDS)		
MC3SE	Thick/Thin/10BaseT, 32K	$199
MC+SEET	Thick/10BaseT, 32K	$149
SCSI Products		
EN/SC10T	10BaseT, Includes SCSI Cable	$239
EN/SCPB	SCSI Cable w/ HPDI-30 & DB-25 for PB	$45
FriendlyNet Adapters		
FNTNA	Thin FriendlyNet Media Adapter	$79
FNTKA	Thick FriendlyNet Media Adapter	$79
FN10TA	10BaseT FriendlyNet Media Adapter	$79
10BaseT Hubs		
10THUB/12	10BaseT Hub w/12 10T, Thick&Thin Port	$479
AH1701	12-port Smart Hub w/SMNP H/W Module	$899
EtherTalk to LocalTalk		
AP1002	AsantePrint, Thick/Thin	$319
AP1001	AsantePrint, Thick/10BaseT	$319
Mac II Family & Performa 600 (NuBus)		
MC3NB	Thick/Thin/10BaseT, 64K	$199
MC+IIE64	Thick/Thin, 64K	$149
MC+IIET64	Thick/10BaseT, 64K	$149
Mac IIsi & SE/30 (68030 PDS)		
MC3IISI	Thick/Thin/10BaseT, 64K, FPU Socket	$199
MC+30IE64	Thick/Thin, 64K, FPU Socket	$149
MC+30IEMC64	Thick/Thin, 64K, FPU Chip	$245
Mac LC, LCII & Performa 400 (68020, 68030 PDS)		
MC+LCII	Thin/10BaseT, FPU Socket	$199
MCLC10TII	10BaseT, FPU Socket	$149
MCLC10TMCII	10BaseT, FPU Chip	$245

radius

VIDEOVISION PRESENTATION SYSTEM INCLUDES ADOBE PREMIERE 2.0



RADIUS COLOR DISPLAYS

Color Display/21	$2319
PrecisionColor Pivot	$939
PrecisionColor DIsplay/19	$2089
PrecisionColor Display/20 or 20S	$2319

RADIUS MONO/GS DISPLAYS

Full Page Display / Pivot Display	$569 / 699
Two Page Display/19	$879
Two Page Display/21	$1149
Two Page Display/21E	$1299

RADIUS INTERFACES

Color Pivot / Mono Pivot	$499 / 249
PowerView	$489
PrecisionColor 8XJ	$489
PrecisionColor 24X	$1629
PrecisionColor 24XP / 24XK	$489 / 819
Two Page / Full Page	$375 / 189

ACCELERATORS

Rocket 25i / 33	$1199 / 1949
RocketShare NEW LOWER PRICE!!	$399
SCSI-2 Booster	$249

VIDEOVISION (BASIC SYSTEM) $1625
VIDEOVISION (PRESENTATION) $1929

PRESENTATION SYSTEM INCLUDES ADOBE PREMIERE 2.0

Everything you need to create hot desktop video presentations. Mix and record high-quality video, audio, and Macintosh graphics to videotape. VideoVision integrates QuickTime and other multimedia applications by providing computer graphics display, video input, and video output on a single card.

RASTEROPS CORPORATION

3 YEAR WARRANTY

MOVIEPAK $1499
MoviePak is the real-time JPEG compression-decompression daughterboard for full-motion video digitizing and full-screen QuickTime playback along with full featured video editing software.

ASK ABOUT $200 REBATE ON CUSTOM COLOR SYSTEMS

SPECIAL BUNDLES

Custom Color 20" System (20T Multiscan Monitor & 24XLi)	$3799
Custom Color 21" System (21" Color Monitor & Paintboard 24)	$3825

VIDEO/MULTIMEDIA/ACCELERATORS

24XLTV / 24MxTV	$2639 / 1639
RasterOps 24STV NEW LOWER PRICE!!	$729
MediaTime / VideoTime	$1499 / 1135
PhotoPro NuBus NEW LOWER PRICE!!	$589
Video Expander II (NTSC)	$529

GRAPHIC DISPLAYS

21" Color (2168)	$2519
20 Multimode Color (2085H)	$1329
20T MultiScan Trinitron (2075M)	$2089
21" Mono/Gray Scale (2110)	$999
15" Mono/GS Portrait (1510)	$499

COLOR DISPLAY ADAPTERS

RasterOps 24XLi / 8XLi	$1895 / 909
Paintboard 24 NEW LOWER PRICE!!	$1449
Paintboard Li	$815
ColorBoard 264/SE30	$699

CALL FOR MORE SUPERMAC PRODUCTS

SUPERMAC

DISPLAYS

SuperMatch 21 Two-Page (9771)	$2449
SuperMatch 20 Dual-Mode Trinitron (9751)	$2449
SuperMatch 20•T Multimode Trinitron (9752)	$2449
SuperMatch 20 Color (9782)	$1479
SuperMatch 17 Multimode (9730)	$1149
SuperMatch 17•T Trinitron (9735)	$1049
Platinum 21 Two-Page Display (9761)	$989

ACCELERATORS/GRAPHIC CARDS

ThunderStorm NEW LOWER PRICE!!	$815
Spectrum/24 Series IV	$815
Spectrum/24 PDQ Plus NEW LOWER PRICE!!	$1515
SuperView NEW LOWER PRICE!!	$365
Spectrum/8•24 PDQ NuBus or IIsi	$815
Spectrum/8 Series III	$405

QUICKTIME MOVIEMAKING

VideoSpigot NuBus* / IIsi*	$369 / 329
VideoSpigot LC	$249
Spigot & Sound NuBus*	$479
VideoSpigot Pro NuBus**	$1069
VideoSpigot Pro IIsi **	$1229
Spigot & Sound Pro NuBus**	$1069

FREE ADOBE PREMIERE LIMITED TIME OFFER

* FREE Adobe Premiere 2.0 LE ** FREE Adobe Premiere 2.0 Full Version

NEC LASER PRINTERS

BUY A SILENTWRITER AND RECEIVE
- √ $250 SILENTWRITER REBATE FROM NEC
- √ 3 YEAR ON-SITE WARRANTY

MacUser ★★★★½ September 1992 Silentwriter Model 95

MODEL 97 $1749
- Adobe PostScript Level 2 • 10 ppm • 35 fonts
- 2 MB RAM • Auto Interface Monitor Switching
- HP LJ III Emulation • Parallel, Serial, AppleTalk
- 250-sheet Paper Capacity
- Built-in Envelope Feeder

MODEL 95FX $1849
- Model 95fx with a built-in plain paper fax
- Fax from any MAC or DOS/Windows PC using the software included with the printer
- The Model 95fx can send & receive faxes to/from any standard fax machine or other Model 95fx

MODEL 97FX $2199

MODEL 95F $1369
- Adobe PostScript Level 2
- 6 ppm • 35 fonts • 2 MB RAM
- Auto Interface Monitor Switching
- HP LJ III Emulation • Parallel, Serial, AppleTalk
- 250-sheet Capacity • Built-in Envelope Feeder

LESS MFG REBATE −$250

$1119

SILENTWRITER OPTIONS

250-sheet Universal Cassette (95/95f/95fx)	$215
250-sheet Universal Cassette (97/97fx)	$215
250-sheet Legal Cassette	$69
2MB Memory Upgrade	$99
Face-Up Tray	$35
EP Printer Cartridge	$195

NEC COLOR MONITORS AND DISPLAY INTERFACE CARDS

The 15", 17" and 21" NEC MultiSync FG Display Solutions for the Mac II family and the powerful Quadra series. MultiSync FG monitors combine features that compliments the Macintosh computer and advance screen performance for brighter, sharper, more accurate images.
- AccuColor Control System with 4FG, 5FG, 6FG
- Larger, more accurate Images
- Comp. w/with LC, LCII, II family , Quadras, NEW Macs
- Multiple-frequency
- 0.28mm trio dot pitch
- TWO Year Warranty

15" MULTISYNC 3FGX $609

MACWORLD MW EDITORS' CHOICE March 1992

- Perfect for general business, presentation, business graphics, paint programs
- Maximum resolution of 1024 x 768
- Invar Shadow Mask • MPR-II compliant

BUY a NEC 3FGx or NEC 4FG with the NEW MacFG 24Xp Video Card and RECEIVE $100 from NEC

15" MULTISYNC 4FG $729
ACCUCOLOR CONTROL SYSTEM

MacUser ★★★★½ September 1992

- Perfect for general business, color-intensive business graphics, presentation, multimedia applications, paint programs, 24-bit imaging
- Maximum resolution of 1024 x 768

4FG & MACFG 8X $1359
4FG & MACFG 24X $1919

17" MULTISYNC 5FG $1299
ACCUCOLOR CONTROL SYSTEM

MacUser ★★★★½ January 1993

- Perfect for large screen business applications, desktop publishing, multimedia applications, paint programs, 24-bit imaging media paint program, 24-bit imaging
- Resolution of 1024 x 768 at 82 dpi

5FG & MACFG 8X $1929
5FG & MACFG 24X $2489

21" MULTISYNC 6FG $2349
ACCUCOLOR CONTROL SYSTEM

MacUser ★★★★½ September 1992

MACWORLD MW EDITORS' CHOICE September 1992

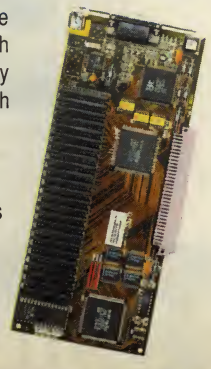
- Perfect solution for professional color desktop publishing, large screen business applications, multimedia paint program, 24-bit imaging
- Supports 1152 x 870 dual page mode

6FG & MACFG 8X $2979
6FG & MACFG 24X $3539

FREE 21" MULTISYNC MONITOR LENS FROM NEC ($199 VALUE)

NEC MACFG COLOR DISPLAY INTERFACE CARDS

The MacFG Color Display Interface card, engineered in conjunction with Radius, gives you flexible display capabilities seamlessly integrated with each of the MultiSync FG monitors.
- NuBus QuickDraw accelerated display interface cards
- Supports Mac II family and Quadras
- Offered in 8-bit and 24-bit color models
- Offers multiple display modes with real time switch on the fly between display modes



MacFG 24Xp $499
- Supports 24-bit color depth, 16.7 million colors
- On-board QuickDraw acceleration
- Supports the MultiSync 3FGx, 4FG, 5FG

MACFG 24X $1199
- Supports 24-bit color depth, 16.7 million colors
- On-board QuickDraw acceleration
- Supports up to 1152 x 870 resolution
- 3 MB of fast VRAM

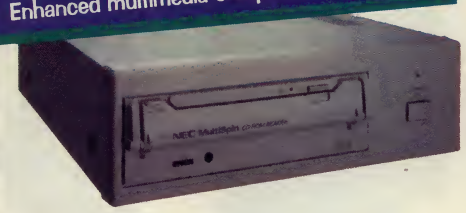
MACFG 8X $639
- Supports 8-bit color depth
- Upgradeable to 16-bit or 24-bit
- On-board QuickDraw acceleration
- Supports up to 1152 x 870 resolution

NEC EVERYTHING YOU NEED TO ENTER THE FASCINATING WORLD OF CD-ROM

NEC MULTISPIN CDR-74 $619

World's first multi-speed CD-ROM reader, the Multimedia (MPC) and QuickTime compliant NEC CDR-74. The NEC MultiSpin CDR-74 features
- 280ms access time
- SCSI-1/SCSI-2 embedded interface
- 300KB data transfer
- 256K continuous flow cache
- **Kodak's Multisession Photo CD**
- **MultiSpin technology**: CD spins twice as fast when accessing data
- Switchable power supply (120V/22V)
- Double-Door Dust Protection
- Includes MAC Interface Kit
- TWO Year Warranty

• Kodak's Multisession Photo CD compatible • SCSI-2 • 280ms access time • 256k cache • Enhanced multimedia compliance



NEC MULTIMEDIA GALLERY $799
- QuickTime compatible NEC CDR-74 CD-ROM reader with MultiSpin technology
- MAC Interface Kit
- Amplified stereo speakers & headphones
- TWO Year Warranty
- 6 interface CD-ROM software titles

JUST GRANDMA AND ME
GREAT WONDERS OF THE WORLD, VOLUME 1
SHERLOCK HOLMES, CONSULTING DETECTIVE
COLOR IT!
THE NEW GROLIER MULTIMEDIA ENCYCLOPEDIA
THE SOFTWARE TOOLWORKS U.S. ATLAS

NEC CD EXPRESS (CDR-25) $395

CD *Express* is the easiest, most complete, and most affordable way for your family to experience the world of advanced interactive CD-ROM technology.
- CDR-25 Multimedia PC compliant CD-ROM reader
- MAC Interface Kit
- Amplified stereo speakers
- TWO Year Warranty
- 6 interface CD-ROM software titles

PUBLISH-IT!
LUCASFILM GAME FAVORITES'
INTERACTIVE STORYTIME
THE SOFTWARE TOOLWORKS WORLD ATLAS
GREAT CITIES OF THE WORLD, VOLUME 2
TOTAL BASEBALL
DISCIS BOOKS AESOP'S FABLES
THE FAMILY DOCTOR
THE MANHOLE CD-ROM
BEST OF THE BUREAU

BUY THE NEC CD EXPRESS AND GET 2 MORE FREE CDS FROM NEC
(1) SOFTWARE TOOLWORKS ENCYCLOPEDIA CD-ROM
(2) KODAK PHOTO-CD ACCESS SOFTWARE & PHOTO SAMPLE CD-ROM

PC INTERFACES AND BUNDLES

NEC CDR-74 with PC Interface	$649
NEC Multimedia Gallery for PC	$799
NEC CD Express for PC	$395

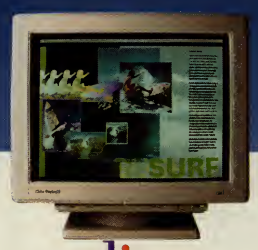
ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS. HARD DRIVE CAPACITIES AND SPEEDS ARE MANUFACTURER'S SPECS. ACTUAL SPECS MAY VARY. WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers.Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused .

ClubMac

1-800-258-2622
3 Musick • Irvine, CA 92718
Sales, Info, Int'l (714)768-8130
Tech Support (714)768-1490
24-Hour Fax (714)768-9354

1-800-258-2622 CLUBMAC 1-800-258-2622

HARDWARE THAT FITS



A radius

B SUPERMAC

F NEC

G RealTech

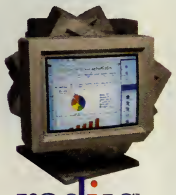
H SONY

I SII

C RasterOps

D RealTech

E SUPERMAC



J radius

K RealTech

L SII

M SONY

"My experience in running large retail organizations for more than 16 years was the person at the top normally heard from customers only when things 'had not gone according to Hoyle' somewhere down the line. I would like to be the exception and bring to your attention my experiences of outstanding service from two of your employees during my recent purchase of a RealTech 19" monitor and RasterOps 24XLi card...their responsive service was a refreshing change."

— Stephen E. Snider

Monitors: all sizes, types, and prices.

	Price	Tube type	640 x 480	640 x 870	832 x 624	1024 x 768	1152 x 870	Auto-syncing	Anti-glare	Mac on-board compatible
A. Radius 21" Color	$3,069	Hitachi					■		■	
RasterOps 21" Color	2,799	Hitachi					■		■	■
B. SuperMac (SuperMatch) 21"	2,529	Hitachi					■		■	
SuperMac 21" Mono/Grayscale	989	—					■		■	
C. RasterOps 20" Trinitron Multi-Mode	$2,329	Trinitron	■		■	■	■	■	■	■
Radius Precision Color 20"	2,389	Trinitron	■		■	■	■	■	■	■
RasterOps 20" Hitachi Color	1,469	Hitachi	■		■	■	■	■	■	■
D. RealTech 20" Trinitron Multi-Mode	1,895	Trinitron	■		■	■	■	■	■	■
E. SuperMac 20" (SuperMatch)	1,499	Hitachi				■			■	
SuperMac 20" (SuperMatch Dual-Mode)	2,499	Trinitron				■	■		■	
F. NEC 17" 5FG Color	$1,589	Toshiba	■		■	■	■	■	■	
RasterOps 16" (RasterOps Sweet 16)	1,249	Panasonic			■				■	■
G. RealTech 17" (RealTech Multi-Mode)	995	Hitachi	■		■	■		■	■	■
H. Sony 17"	1,189	Trinitron	■		■	■		■	■	■
I. Seiko Instruments 17" CM1760LR	1,249	Trinitron	■		■	■		■	■	■
J. Radius Precision Color Pivot 15"	$959	Non-Trinitron	■	■	■	■		■	■	■
K. RealTech 15" Grayscale	449	—		■					■	■
L. Seiko Instruments 14" CM1445	479	Trinitron	■							■
M. Sony 13" Color	689	Trinitron	■						■	■

Monitors

PowerBooks

These PowerBook 160s and PowerBook 180s each include: 8 Mb of RAM, expandable to 14 Mb; display with 16 grayscale levels; 1.4 Mb floppy disk drive.

PowerBook® 160

25 MHz 68030. Supertwist display. 40, 80, or 120 Mb hard drive.

PowerBook 160 with 8/40 ..... $2639
PowerBook 160 with 8/80 2999
PowerBook 160 with 8/120 3359

PowerBook® 180

33 MHz 68030 FPU. Active matrix display. 80 Mb hard drive.

PowerBook 180 with 8/80 ..... $4319
PowerBook 180 with 8/120 4679

POWERBOOK MEMORY UPGRADES & ACCESSORIES

PowerBook 160 & 180 Memory Upgrades (6/8/10)... $289/409/499
PowerBook Duo 210 & 230 Memory Upgrades (4/8/12) 279/559/809
Auto Power Adapter 89
Charger/Reconditioner 169
Auxiliary Power Pack 169
Radius PowerView 509
PowerBook Battery 79

The PowerBook Duo 210 8/80 and PowerBook Duo 230 8/80 transform into desktop computers by using the optional Duo Dock. Each PowerBook Duo 210 or 230 includes:

- 640 x 400 Supertwist liquid crystal display with 16 grayscale levels
- 8 Mb of RAM, expandable to 24 Mb
- EverWatch Battery Saver technology
- Optional internal modem

PowerBook® Duo 210 8/80

$2,529

Lease: $69/month

25 MHz 68030 microprocessor. 80 Mb hard drive.

All PowerBooks listed here are equipped with a 19mm trackball.

PowerBook® Duo 230 8/80

$2,889

Lease: $79/month

33 MHz 68030 microprocessor. FPU, 80 Mb hard drive.

PowerBook Duo 230 with 8/120.... $3249

POWERBOOK MODEMS

Global Village PowerPort *Gold/Silver/Bronze* $459/399/209
MassMicro FM 24/96 PB 189
Zoom Pocket Modem 119

POWERBOOK CARRYING CASES

Leather Attache (A) $139
SuperBrief Double-sided Carryall (B)... 79
Companion Case (C) 59

Accelerators

DO YOU FEEL THE NEED FOR SPEED?

CALL US, AND WE'LL MATCH YOU WITH THE RIGHT ACCELERATOR.

Applied Engineering® DAYSTAR DIGITAL PLI radius

APPLIED ENGINEERING

TransWarp SE (40 MHz w/16-FPU)..... $959
TransWarp LC (25 MHz) 459
TransWarp LC (50 MHz w/50-FPU) ... 1319
TransWarp 040 (25 MHz) 1749
1.44 SuperPlus Drive 279
QuadraLink 199

DAYSTAR DIGITAL

PowerCache Accelerators

33 MHz Accelerator $379
40 MHz Accelerator 549
50 MHz Accelerator 719
25 MHz Turbo 040 (IIci,IIsi) 1099
33 MHz Turbo 040 (IIci,IIsi) 1349
FastCache Turbo 25 (040) 259
FastCache Turbo 33 (040) 339
Charger (Photoshop accelerator) 799
PowerCache Adapter 40

FUSION DATA

TokaMac IIci $1259
TokaMac IIsi 1259
TokaMac ELC 969

NEWER TECHNOLOGY

Quadra 700 Overdrive $259
Image Magic NuBus 769
Image Magic FX/PDS 699
Image Magic Quadra/PDS 699

PERIPHERAL LAND

Quick SCSI Accelerator $339

RADIUS

Radius Rocket 25i $1239
Radius Rocket 33 2069
SCSI-2 Booster 249
Rocket Share 419

Your one-stop source for Mac solutions.

1-800-364-WEEK

CALL TOLL-FREE IN CANADA: 1-800-972-3018

FAX: 1-409-539-4141
CALL: 1-409-760-2400

Toll-free tech support: 1-800-364-MACS

NETWORKING CARDS & HUBS

Asanté 10T Hub/8 (Ethernet concentrator)

Lets you use inexpensive unshielded twisted-pair (UTP) telephone wire instead of expensive coaxial cable for local area networks.

10Base-T Hub/8 ..... $265

Asanté EN/SC (SCSI-to-Ethernet adapter). For Macs without available slots.

EN/SC $339

Asanté MacCon 3 Ethernet card. Automatically configures to media used.

MacCon 3 Card $216

TechWorks GraceLAN Update Manager

GraceLAN for 50 Users $285

We carry a full line of Asante and Dayna cards.

DaynaPORT E/II-T NuBus Card

Connects Mac II computers to thick, thin, fiber optic or 10Base-T Ethernet cable systems.

Includes an RJ-45 jack for 10Base-T wiring.

DaynaPORT E/II-T NuBus Card $149

DaynaPort E/Z. Ideal for Macs that don't have a slot for a network interface card.

DaynaPORT E/Z $269

Dayna EtherPrint

Divides your network into multiple zones.

Dayna EtherPrint..... $335
Dayna EtherPrint Plus.... 439

Scanners

Flatbed desktop scanners for 24-bit color, 8-bit grayscale, and black/white images. Ideal for mid-range output or position prints for mockups/presentations.

	Price	DPI	Brightness & contrast levels	Scanning area	Flat art	Transparencies	Slides	Software
MICROTEK								
Scanmaker II	$909	600	14	8.5 x 13.5	■			Includes limited version of Adobe Photoshop
Scanmaker IIXE	1,179	600	14	8.5 x 13.5	■			Includes full version of Adobe Photoshop
Scanmaker 1850 Slide Scanner	1,569	1850	14	2.5 square inches			■	Includes full version of Adobe Photoshop
REALTECH								
Scan 800	$1,199	800	200	8.5 x 11.75	■			Includes Scan-Match color calibration software
Optional Adobe Photoshop	200							
Scan 800 with Transparency Option	1,695	800	200	8.5 x 11.75	■	■	■	
UMAX								
UC 630	$1,119	600	51	8.5 x 14	■			Includes full version of Adobe Photoshop
Transparency Option	729	(600)	(51)	6 x 9	■	■	■	
UC 840	1,289	800	51	8.5 x 14	■			Includes full version of Adobe Photoshop
Transparency Option	729	(800)	(51)	6 x 9	■	■	■	
UC 1200S	3,019	1200	51	8 x 11.8	■			Includes full version of Adobe Photoshop
Transparency Option	729	(1200)	(51)		■	■	■	

The photo above is a 300 dpi image of an 8 x 10 transparency. It was scanned on the RealTech Scan 800 with Transparency Option, then adjusted with ScanMatch and color-corrected with Adobe Photoshop.

Scanners & Printers

Systems
Configured to your specifications

Here are a few of the systems/workstations we sell. We'll let you mix and match your choice of components.

Macintosh IIci Business Solution

Macintosh IIci with 5 Mb of RAM, 212 Mb hard drive, Supermac 21" platinum monitor with video card, cache card, and Key Tronic MacPro Plus extended keyboard.

$4095
Lease: $112/month

$2,729
Lease: $77/mo.

Mac IIsi Solution

$7,849
Lease: $215/month

Quadra 700/Trinitron Intermediate Graphics Solution

Quadra 700, 8 Mb of RAM, 520 Mb hard drive, RealTech 20" Trinitron monitor w/PaintBoard Li and Key Tronic MacPro Plus extended keyboard.

Macintosh IIsi with 5 Mb of RAM, 120 Mb hard drive, Seiko Instruments CM 1445 14" Trinitron monitor, and Key Tronic MacPro Plus extended keyboard.

Hours: 8 am-7 pm Central Standard Time

30-DAY MONEY-BACK GUARANTEE on all hardware (except printer consumables and special-order items). Before returning merchandise, call our Customer Service Dept. toll-free to receive a returned merchandise authorization number (RMA), which must be included with any products you return. No C.O.D. returns, please. Thank you for your cooperation. ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Laser printers

The right printer can do wonders for your productivity. Do you need speed? Adobe PostScript Level 2? Do you need to print a lot of pages each month?

QMS

We offer dozens of printers, including the QMS line...too many to show in this ad! If you don't see what you want listed here, please call us.

	Dpi / Engine speed / RAM	Interpreter / Microprocessor	Duty cycle / Paper trays	SCSI port / Interfaces	Resident fonts / Misc.
NEC Silentwriter Model 95 ★★★★½ $1,469 Lease: $40/month	■ 300 dpi ■ 6 pages/min. ■ 2 Mb RAM (expandable to 5 Mb)	■ Adobe PostScript Level 2 ■ Motorola 68000 processor	■ 6,000 pages per month ■ Built-in envelope feeder & 250-sheet tray; optional 2nd tray available in letter or legal sizes	■ No SCSI port ■ Appletalk RS-422, parallel, and RS-232C	■ 35 *Micro-fine toner and NEC's patented "Sharp Edge" technology create sharp black print quality*
newgen ★★★ **NewGen 400P** $1,879 Lease: $51/month	■ 400 dpi ■ 4 pages/min. ■ 4 Mb RAM (expandable to 16 Mb)	■ PostScript compatible ■ Weitek XL-8220 processor	■ 3,500 pages per month ■ Optional 2nd paper drawer	■ Optional SCSI port ■ Appletalk RS-422, parallel, RS-232C	■ 35
Real Tech™ **RealTech Laser** ★★★★½ $1,595 Lease: $44/month	■ 300 dpi ■ 9 pages/min. ■ 2 Mb RAM (expandable to 10 Mb)	■ Adobe PostScript Level 2 ■ Weitek RISC processor	■ 5,000 pages per month ■ Optional 2nd paper tray & cassette feeder are available for $250 (for both)	■ SCSI port ■ Appletalk RS-422, parallel, and RS-232C. *"Genius level" memory is dynamically allocated and automatically reclaimed.*	■ 35 *ATM font rendering technology builds raw type characters 4 to 5 times faster, enabling the RealTech Laser to print complex documents faster than other printers in its price range.*
Texas Instruments MicroLaser XL Turbo $2,795 Lease: $77/month	■ 300 dpi ■ 16 pages/min. ■ 2.5 Mb RAM (expandable to 10.5 Mb)	■ Adobe PostScript Level 2 ■ Weitek RISC processor	■ 25,000 pages per month ■ Optional 2nd paper drawer	■ Optional SCSI port ■ Appletalk RS-422, parallel, and RS-232C	■ 35
Texas Instruments MicroLaser Plus $1,249 Lease: $34/month	■ 300 dpi ■ 9 pages/min. ■ 1.5 Mb RAM (expandable to 4.5 Mb)	■ Adobe PostScript Level 1 ■ Motorola 68000 processor	■ 10,000 pages per month ■ Optional 2nd paper drawer and envelope feeder	■ Optional SCSI port ■ Appletalk RS-422, parallel, and RS-232C	■ 17 *Available with 35 resident fonts ($1349)*
The only 11x17 printer with Adobe PostScript Level 2 for less than $3500. Real Tech™ **RealTech Laser 400** $3,195 Lease: $88/mo.	■ Choice of 300 or 400 dpi ■ 15 ppm (letter size); 8 ppm (tabloid size) ■ 4 Mb RAM (expandable to 16 Mb)	■ Adobe PostScript Level 2 ■ Weitek RISC processor (and ATM font rendering technology)	■ 20,000 pages per month ■ Two paper trays included *(one tray for letter size; one tray for tabloid size.)* ***"...be forewarned: PostScript-clone printers still have a long way to go before they can rival true Adobe PostScript printers."*** Quote from MacUser September 1992 issue. "Personal PostScript Printers" by Bruce Fraser.	■ SCSI port ■ 35 *Three interface ports: Appletalk RS-422, IBM PC parallel, and RS-232C.* ★★★★ *MACWORLD MAGAZINE September 1992*	*Jeanne is thrilled that she can print proofs of her company newsletter on tabloid-size paper. No more tiling!*
QMS 860 Hammerhead $4,279 Lease: $117/mo.	■ 600 dpi ■ 8 ppm (letter size); 4.6 ppm (tabloid size) ■ 12 Mb RAM (expandable to 32)	■ Adobe PostScript compatible ■ Intel 80960CA RISC processor *Three interface ports: Appletalk RS-422, IBM PC parallel, and RS-232C.*	■ 10,000 pages per month ■ Optional 2nd paper cassette	■ SCSI port ■ Optional Ethernet ■ 39 fonts	

#1 In Service

MacCenter®

The Center Of The Macintosh Universe™

NEC

FREE! 3 YEAR ON SITE WARRANTY!

$1079*

Limited Offer!

Silentwriter Model 95f

* with $250 End User Rebate and $50 Amex Gift Certificate

Texas Instruments

MacUser ★★★★

microLaser *Turbo* $1499

microLaser *Plus* PS17 $1199

microLaser *Plus* PS35 $1329

HEWLETT PACKARD

LaserJet 4M

MAC SYSTEMS

Color PowerBook 165c NOW AVAILABLE!

PowerBook 160 4.40 **$2299**

We Have

IN STOCK

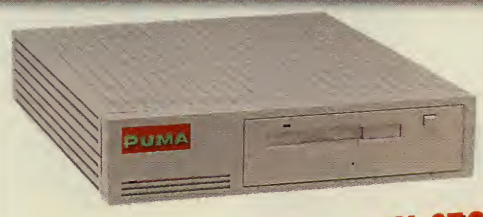
All PowerBooks: 160, 165c, 180, 210 and 230

Call to Claim Yours!

OPTICAL DRIVES

PUMA™ 256 MB Optical

captured, but not tame℠



IN STOCK!

- Puma™ 256 reads & writes ISO/ANSI standard 128 MB cartridges and a true, non-compressed 256 MB
- Fast transfer rate up to 1.2 MB/second
- Fast 35 ms access time
- Optical reliability (10 year data life)

Puma™ 256 MB 3.5" Drive $1799

Puma™ 128 MB 3.5" Drive Call!

128/256 MB 3.5" Cartridge $59/$99

Five Year Warranty available!

While Supplies Last! **Optical Power!** Puma 128 includes *Snooper*, *Norton Utilities*, and *TWO* 128 MB Cartridges!

SIMMS

4 Meg 80ns $105 w/ trade in

1 Meg 80ns $32

2 Meg 80ns $59

6 Meg PowerBook $249

LIFETIME WARRANTY

Due to the extremely volatile nature of SIMM pricing, all prices subject to change without notice.

SYQUEST DRIVES

Eagle™ 44	$399
Eagle™ 88	$499
NEW! Eagle™ 88C	$599

The new Eagle 88C can read and write to both 44MB and 88MB cartridges.

Quadra 900/950 internal mounts available!

Buy an Eagle 44 and get **Two 44MB cartridges for $89!**

Buy an Eagle 88 or 88C and get **Two 88MB cartridges for $139!**

HARD DRIVES

SPECIAL!

Falcon TOSHIBA 1.4 Gig

SCSI-2 Hard Drive

12.5 ms access time

$1399 internal mount

5 year WARRANTY

FIVE YEAR WARRANTY

30 DAY MONEY BACK GUARANTEE!

8:00 am – 8:00 pm CST M-F

10:00 am – 5:00 pm CST Sat

Sunday: Call, you may get lucky

4930 South Congress Avenue, Suite 303

Austin, Texas 78745-2381

Net 30 day terms

for all Government, Military, School District and University Purchase Orders. Net 30 day terms are also available for all approved Corporate Purchase Orders. Call for details on our Corporate Purchase Program.

MasterCard & Visa accepted with NO surcharge. NO surcharge or minimum for Fax or Foreign orders.

Most products available in 110v & 220v.

Prices valid 3/1/93 through 3/7/93.

All returns require approval and are subject to a restocking fee.

© MacCenter® 1993

FAX 512-444-3726

International Orders 512-445-5114

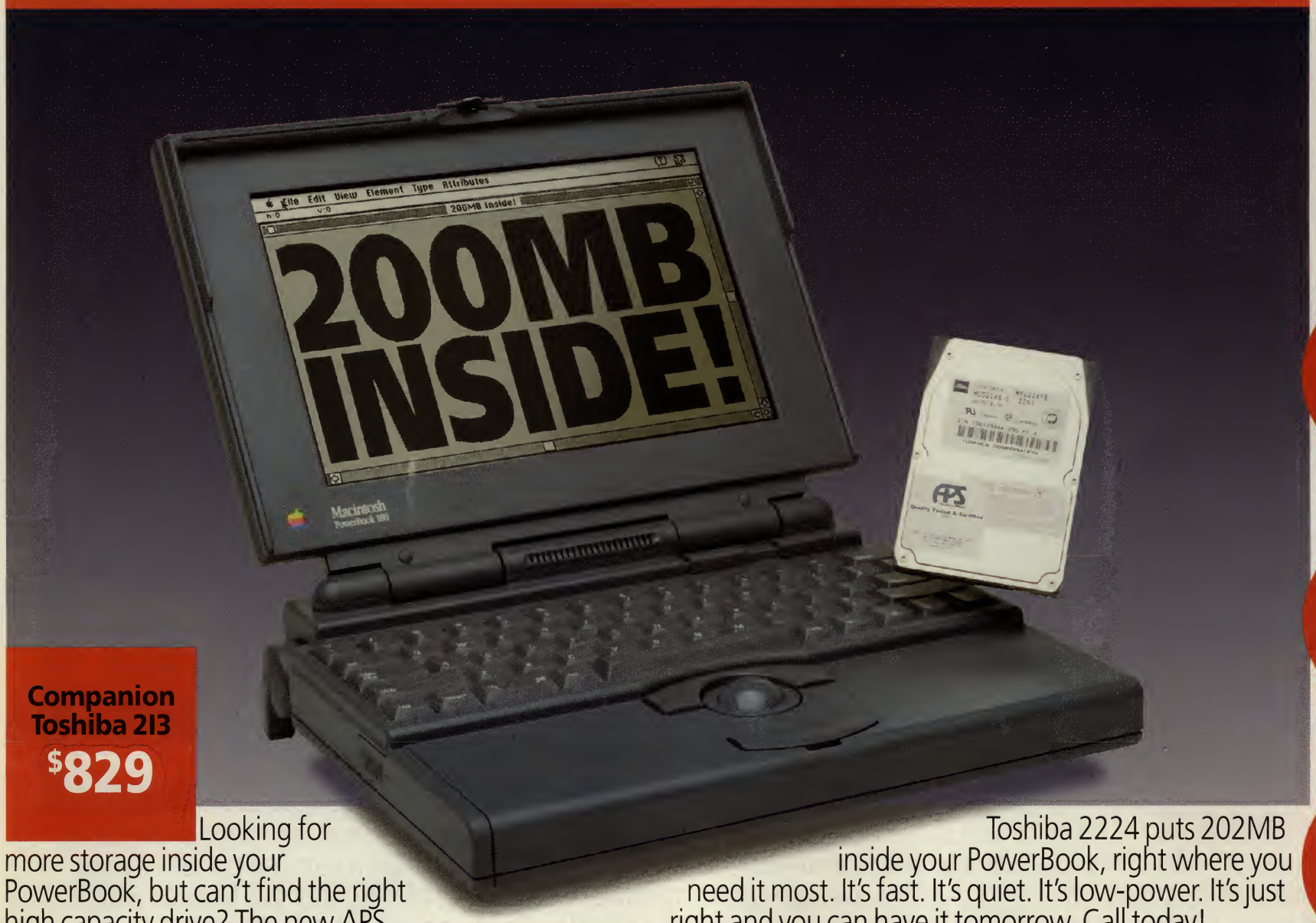
800 950 3726

International ☎ United Kingdom 0800-89-5074 France 05-90-1430 Germany 0130-81-4748 Mexico 95-800-292-7029

MasterCard VISA AirborneExpress UPS

PowerBook Breakthrough

APS Toshiba 213, $699



Companion Toshiba 213
$829

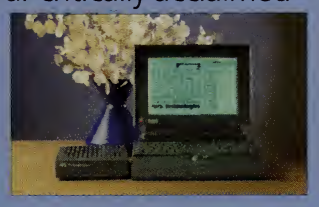
Looking for more storage inside your PowerBook, but can't find the right high capacity drive? The new APS Toshiba 2224 puts 202MB inside your PowerBook, right where you need it most. It's fast. It's quiet. It's low-power. It's just right and you can have it tomorrow. Call today!

Over 200MB inside your PowerBook

PowerBook computing is becoming a style of life and work all its own. Those big files that you deal with so easily on your desktop Mac are such problems on that little hard disk drive that came inside your PowerBook. You've had other options, but the best one is available from APS right now. The new APS Toshiba 213 is just what you need.

The perfect companion

Based on Toshiba's 2224, 213MB mechanism, the APS Toshiba 213 is the fast, quiet, low-power choice to install inside your PowerBook or out in our critically acclaimed Companion Drive enclosure. Supporting sustained transfer rates as high as 1.4MB per second and seek times as low as 17ms, this drive is one of the fastest available for your PowerBook. For a high capacity drive, this screamer is surprisingly stingy on power consumption. It requires just 0.12 watts in sleep mode and no more than 3 watts at full access, a real plus for battery-burdened PowerBook owners.



Because your data is precious, we include with every PowerBook drive, DiskFit Direct from Dantz Development, the experts in Macintosh backup software.

The APS Toshiba 213 has a 150,000 hour MTBF and carries a one-year manufacturer's warranty. Best of all it includes APS's award-winning service and unlimited toll-free technical support.

Go ahead and buy it

Don't get caught in the PowerBook storage bottleneck, order your APS Toshiba 213 today!

- 30-Day Money-Back Guarantee
- Unlimited Toll-Free Technical Support
- Disk-For-Disk Replacement Warranty
- 24-Hour BBS with Our Latest Software
- Bright, Knowledgeable Sales Associates

1-800 645-5401

APS TECHNOLOGIES

Screaming Deal
APS Maxtor 340, $639

Great Prices. Priceless Support!

External APS MX 340 $719

DiskFit Direct INCLUDED

Cache it if you can! The APS Maxtor LXT-340 offers a 128KB split RAM cache which speeds access, reads and writes. At 15ms average seek and nearly 1.7MB per second transfer rate, this is a real performance bargain. Add it as an external device at $669 or install it internally in compatible late model modular Macs for just $599, this APS Maxtor 340 is the price/ performance bargain of the year.

Quantum

MW Editors' Choice

MB	INTL	EXTL
240	$459	$539
525	1079	1149
1225*	1499	1569

*Includes new 5-year warranty

Quantum

MW Editors' Choice

ELS Low Profile Drives

MB	INTL	EXTL
42	$159	$219
85	199	269
127	299	369
170	369	429

Fujitsu

MW Editors' Choice

MB	INTL	EXTL
520	$999	$1099
1.2G 5.25	1449	1549
1.2G 3.5	1799	1899
2.0G	2399	2499

Includes new 5-year warranty

APS PowerBook Companion Cases

The Perfect Home for Your Original PowerBook Drive

AC only	$79
AC/DC (Battery-Powered)	169

Micropolis

MB	INTL	EXTL
560	$1299	$1369
1.1G	1699	1799
2.0G	2699	2799

Includes new 5-year warranty

Quantum

Mac User LABS

PowerBook Go•Drives

MB	INTL	EXTL
80GRS	$349	$499†
120	429	559†
160GRS	599	729†

†Battery-powered Companion Case for the PowerBook

Maxtor

Mac User LABS

MB	INTL	EXTL
120*	$249	$329
213*	369	429
340*	599	669
540*	1099	1199
1.2G**	1549	1649
1.7G**	1899	1999

*Includes 2-year warranty **Includes 5-year warranty

APS SCSI Boy $29

- *The Ultimate PowerBook Necessity*
- *Rugged Palm-Sized 25–30 PowerBook SCSI Adapter*
- *Carry Only One Cable*
- *Never Get Caught with the Wrong Cable Again!*

†Dealer Inquiries Welcome

APS Technologies

MACWORLD MW SERVICE HERO

SyQuest: The standard in transportable storage

External SyQuest 555
$389
Includes One 44MB Cartridge

External SyQuest 5110
$489
Includes One 88MB Cartridge

NEW! External SyQuest 5110c
$599
Includes One 88MB Cartridge

You know the SyQuest 44 and 88. Together they're the transportable storage standard. True interchangeability has been the only problem in an otherwise idyllic transportable storage world. SyQuest's 5110c solves the problem. With both read and write compatibility with 44MB and 88MB cartridges, you no longer have to wonder which SyQuest unit to buy.

Toshiba

MB	INTL	EXTL
1.2G	$1399	$1499
213	$699	$829†

†Battery-powered Companion Case for the PowerBook

Put 200MB in your PowerBook today! Faster and quieter than our Quantum GO drives!!

CD-ROM 3401-EI	$699	$749*

Fastest CD-ROM Drive Available
Double Speed, Multi-Session Photo CD Compatible
**Includes Four-Disc APS CD Bundle*

DAT

MB	INTL*	EXTL
APS TurboDAT	$1699	$1799
APS DAT	1199	1299

**Internal models for Quadra 900 & 950*
All APS Tape Drives Include Retrospect by Dantz

Epson MO

Model	INTL	EXTL
128	$1099	$1199

128MB Magneto Optical Drive

SyQuest

Model	INTL	EXTL
SQ555	$349	$389
SQ5110	469	489
SQ5110c	569	599

The 5110c reads & writes 44 & 88 carts!
SyQuest Cartridges 44/88.....$65/100
Preformatted Cartridges 44/88.....$70/105

TEAC

155 MB Tape Back Up	$499
600 MB Tape Back Up	799

APS Modems for PowerBooks $69

2400 baud *(9600 send fax/4800 receive fax)*

9600 baud v.32	$279
14,400 baud v.32 bis	$349

All APS Modems for the PowerBook include a 30-day MBG, comprehensive installation guide, and APS's Communications & Fax software.

- **30-Day Money-Back Guarantee**
- **Unlimited Toll-Free Technical Support**
- **Disk-For-Disk Replacement Warranty**
- **24-Hour BBS with Our Latest Software**
- **Bright, Knowledgeable Sales Associates**

• **30-day money-back guarantee** • All drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.
• **Disk-for-disk replacement warranty** • SyQuest, most Quantum, Maxtor and DAT drives are warranted for two years, Maxtor I.2, I.7 GB and Fujitsu drives are warranted for five years. WREN, Quantum 2.5" drives, TEAC drives, all CD-ROMs, MOs and SyQuest carts are warranted for one year. Toshiba 830 is warranted for three years.
• **Prices and specifications subject to change without notice. Refused orders subject to restocking fee.**

•**All our hard drives include brackets, cables, cords and LEDs required for operation** with the specified Macintosh. All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, at least 9.2 MB of compacted publicly-distributable software, and APS Technologies' ALLIANCE POWER TOOLS. SCSI formatter/hard disk partitioner.
• **Toll-free technical support as often or for as long as you need.** Regular hours are 8 am to 8 pm Monday thru Friday, 10 am to 4 pm Saturday, Central Time.

M–F 7AM–9PM CST. SAT 10AM–4PM CST.
Visa/Master Card, Discover, American Express: No Surcharge.
APS Technologies, 2900 S. 291 Hwy., Independence, MO 64057
International: 1-816 478-8300. FAX: 1-816 478-4596 (24 Hours).
Toll Free UK: 0800-897-545. Australia: 0014-800-125-875.

1-800 645-5401

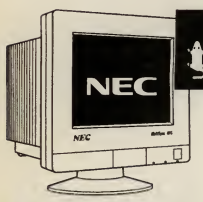
APS TECHNOLOGIES

1-800-BUY-SYEX
1-800-289-7939

The Difference is

At SYEX Express, we're dedicated to offering you the lowest prices and best service. That's why we run black-and-white ads. By saving money on advertising, we can give you lower prices on more products and a much larger selection. At SYEX Express, the difference is black and white.

NEC



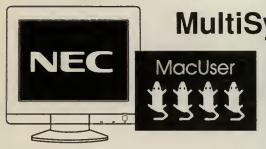
MacUser

MultiSync® 4FG™ $759

Great for color-intensive business. graphics, presentations, and more 15" diagonal, .28mm dot pitch; 1024x768 non-interlaced.

MultiSync 3FGx™ (MacUser) $649

NEC MultiSync 5FG $1329



MultiSync 6FG $2379

Large 21" screen; great for color business applications; .28mm dp; 1280 x 1024 non-interlaced
**Free Monitor Lens from NEC

NEC FG8x card. $669
8-bit color NuBus card with QuickDraw™ acceleration

NEC FG24x card. $1279
24-bit color NuBus card with QuickDraw acceleration

NEW **NEC FG24xp card.** $549
24-bit color NuBus card with QuickDraw acceleration

Silentwriter® Model 95f $1119†
†after $250 mail-in rebate

3-Year ON-SITE Warranty*

- 2MB RAM / 6ppm printing
- 35 Adobe fonts / 14 HP fonts
- Automatically switches interface between Mac & DOS platforms
- Accepts fax upgrade

*some restrictions apply

Silentwriter Model 95fx .....$1719†
Same as Model 95f; includes PostScript® Fax option

Fax Upgrade for Model 95f $489

2MB Memory for Model 95 .....$119

Toner Cartridge for 95/97 .....$165

Silentwriter Model 97 .....$1499†
10 pages per minute; 2MB RAM; 35 Adobe fonts; 14 HP fonts.
3-year On-site warranty

Silentwriter Model 97fx .....$1949†
Same as Model 97; includes PostScript® Fax option
†after $250 mail-in rebate

CD-ROM Drives

CDR-25 Express™ Bundle. $399
CDR-25 with 1 pair amplified stereo speakers, stereo headphones, and 10 new CD titles.

CDR-74 w/ CD Gallery. $799
CDR-74 with CD Gallery includes 1 pair amplified stereo speakers, headphones, and 6 CD titles.

Scanners

UMAX®

MacUser

UMAX UC-630. .....$1089
600 dpi color scanner with PhotoShop®

Transparency/Slide Scanner Option for UC-630. .....$729

UMAX UC-840. .....$1349
800 dpi color scanner with PhotoShop

HEWLETT PACKARD

Special Offer

HP PaintWriter XL

11" x 17" and 8.5" x 11" color output, Built-in AppleTalk, automatic sheet feed, fast print speed, shared or high-volume use.

$499 Only while supplies last!

Modems

NEW

Supra Corporation®

SupraFAXModem™ 144PB. $299
For PowerBook models 100 through 180. 14,400 bps data and fax transmission.

SupraFAXModem144PB Plus. $399
Enhanced SupraFAXModem 144PB; includes voice messaging capabilities, software, and FlashROM

Supra FAXModemV.32bis. $349
14,400 bps data and send/receive fax transmission. Includes FAXstf™, Microphone™ 1.6 software and cable.

Supra FAXModem+. $179

GLOBAL VILLAGE™

Global Village Modems

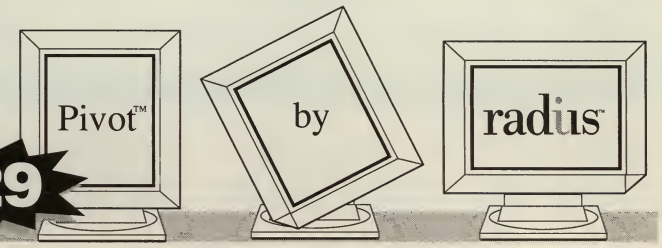
PowerPort/Gold™. $419
14,000 bps data ; 9600 bps fax send/receive

PowerPort/Silver™. $359
9600 bps data ; 9600 bps fax send/receive

PowerPort/Bronze™ $179
2400 bps data; 9600 bps fax send; 4800 bps fax receive

• • • • • • • Call for prices on memory. • • • • • • •

radius™



Radius™ PrecisionColor™ Pivot® Display $929
15-inch, dual-orientation, anti-glare, color full page display compatible with all Color Pivot interfaces (256 colors) and most Precision Color interfaces. Works with Quadra's built-in video. Also compatible with PowerView™ for PowerBooks and Classic II.

Radius Color Display/21™ $2999
21-inch color display for Macintosh (NuBus™) computers. Displays two facing pages in a resolution of 1152x870 at 75 Hz and 78 dpi. Also supports 1072x810 for WYSIWYG (72 dpi) display.

Radius Monochrome Two Page Display/19. .....$849
19-inch, landscape, Two Page display display for Macintosh and PC computers. Macintosh resolution is 1152x 882 at 71Hz at 82 dpi.

Radius PrecisionColor Display/20S. $2329
20-inch multi-frequency Trinitron® color display for Macintosh and PC computers. "On-the-fly" resolution switching. Comes with PrecisionColor software bundle: ImpressIt™ image compression software, Dynamic Color™ temperature and gamma correcting software, and Dynamic Desktop® resolution control for Quadra computers.

Radius Graphics Cards & Interfaces

Color Pivot Interfaces (NuBus, IIsi, LC, SE/30) $499
Two Page Display interface (NuBus, IIsi, SE/30) $379
PrecisionColor 8X Card $749
PrecisionColor 8XJ Card $489
PrecisionColor 24X Card $1629
PrecisionColor 24XP Card $499
Radius Rocket 25i™ $1199
Radius Rocket 33™ $1979
VideoVision™ $1929
Radius ImpressIt™ software $149
Radius PrecisionColor software $247
RocketShare™ $409

Complete line of Radius products available. Call for more information.

Cellular PowerBook Kit

- INT1202 Intelligent cellular interface
- NEC P200/300Portable Cellular phone
- Stylish Leather Attaché

PowerBook not included

Fax, Link, Compute and Call from wherever you are!

Connect your Macintosh PowerBook to the Cellular PowerBook Kit and fully utilize your PowerBook wherever you go! Send & receive data transmissions, or link to computers & fax machines. Gain access to local & international telephone services.

To Order Call 1 (800) 766-4767

PowerBook Accessories

Memory Modules

4MB for PowerBook 160/180 .....$249
4MB for PowerBook Duo 210/230 .....$239
6MB for PowerBook 140/170 .....$229
8MB for PowerBook Duo 210/230 .....$419
10MB for PowerBook 160/180 .....$509

Portable Printer

GCC TECHNOLOGIES

GCC Technologies WriteMove® II. $525
It's the best portable printer for your PowerBook. Only 2.5 pounds, battery-powered, 360x360 dpi laser-quality output, includes ATM™, 21 fonts, background printing, and On-Screen Page Preview.

Docking Stations

E-MACHINES

In Stock

E-Machines PowerLink™ Presentor. $489
It's the only portable dock that turns your PowerBook Duo into a presentation machine. Connects PowerBook Duo to large screen displays, televisions, LCDs and projectors.

E-Machines PowerLink DeskNet™ $689
The only desktop dock with full-speed Ethernet. Choose 10BaseT or Thin Ethernet for compatibility with existing and new networks.

Carrying Cases

Teneba PowerBook Case $89
Kensington PowerBook Case $49
Kensington Deluxe PowerBook Case $79
PowerBook and Printer Case $69
PowerBook Case with DayMaker Software $95

SYEX EXPRESS

VISA MasterCard DISCOVER

To Order Call: 1-800-BUY-SYEX
1-800-289-7939

International and Canadian Orders fax to (713) 956-5741 or call (713) 957-1999

Black and White

International and Canadian Orders fax to (713) 956-5741 or call (713) 957-1999

SYEX EXPRESS

Your One-Stop Macintosh Peripheral Center

10 Years Of Experience — Selling Macintosh Solutions & Peripherals

ASANTÉ™

Thin FriendlyNet® Media Adapter	$79
10BASET FriendlyNet Media Adapter	$79
MacCon+LC	$149
MacCon LC/10T	$149
MacCon+IIE64	$149
MacCon+IIET64	$149
MacCon3 NuBus	$195
MacCon3 for IIsi	$195
MacCon+ 30IE64	$149
MacCon+ 30IET64	$149
EN/SCT 10BaseT SCSI Adapter	$239
EN/SC PB 10BaseT for PowerBook	$269
10T Hub/8	$239
10T Hub/12	$479

Complete line of Asanté products available

Dayna

Dayna PathFinder	$769
SCSI/Link™	$279
SCSI/LinkT PB 10T for PowerBook	$299
DaynaPORT™ E/II-T	$149
DaynaPORT Mini Hub/8	$289
EtherPrint-T	$329
EtherPrint™ Plus	$419
DaynaPORT E/II	$149
DaynaPORT E/LC	$149
DaynaPORT E/SI	$149

Complete line of Dayna products available

Farallon®

EtherMac™ II 10T	$175
EtherMac II Thinnet	$175
PhoneNET® StarController® 12 Port	$799
PhoneNET StarController EN™	$1199
PhoneNET StarController 24 Port	$1299

Complete line of Farallon products available

SONY®

Now in stock!

Sony CPD-1320UC2 14" Trinitron®. **$349**
Sony CPD-1604S 17" Trinitron Multiscan®. .. **$1089**
Sony GDM-2036S 20" Trinitron Multiscan. . **$2099**

3.5" 128MB Magneto Optical Disk Drive
RMO-S350 with Mac kit **$1489**
Rewritable 3.5" disk with capacity of 128MB

5.25" 650MB Magneto Optical Disk Drive
RMO-S550 with Mac kit **$2429**

128MB Optical Cartridge. **$59**
650MB Optical Cartridge. **$139**

Removable Cartridges

SyQuest®

45MB. **$65**
88MB. **$105**

ExpressNet

FREE Network Consultation

SYEX Express can provide network consultation at no charge. Simply fax your network needs and a list of your systems, including hosts, to SYEX Express (713) 956-5741, and our systems engineers will fax back a networking solution that fits your needs—all at no charge.

Dataproducts®

LZR 1560™ Ledger/A3 Laser Printer
15 PPM; 300 or true 400 dpi resolution, 4MB RAM; Adobe PostScript Level 2; supports 11"x17" (ledger) size paper; models with one, two or three 250 count input trays

LZR 1560 with Two Trays ..... Great Low Price **$3069**
1560 Legal Cassette. **$69**
1560 Ledger Cassette. **$69**

LZR 960™ Printer. **$1599**
The LZR 960 delivers unsurpassed performance for Mac users. 300 dpi; 9 ppm printing; 2MB RAM; Adobe PostScript Level 2; 35 resident fonts

JOLT™ PS Color Printer **$4249** — New Low Price

Integrate vibrant color into documents on a wide variety of office papers; 300 dpi output; 1ppm for color output—the fastest device of its kind. PostScript Level 2, 6MB RAM

JOLT Transparency Enhancer. **$293**
960 Legal Cassette. **$39**
960 Toner Kit. **$49**
960 2MB Upgrade. **$269**

DAYSTAR DIGITAL

NEW
33 MHz Turbo 040 ..... **$1349**
FastCache Turbo 33 ..... **$349**
50 MHz PowerCache with 68882 ..... **$849**
PowerCache Adapter IIsi **$40**
PowerCache Adapter II **$40**
PowerCache Adapter LC **$40**
PowerCache Adapter IIx **$40**
FastCache Quadra - 700, 900, 950 (128K) **$399**

Mac IIci Cache Card
with 32K sRAM **only $49**
with any SYEX Express purchase.
Offer good while supplies last.

MicroNet Photo CD™ Drive **$649**

Sony Photo CD-ROM drive compatible with Macintosh family. Includes caddy. 325ms access time; multi-session capable

MicroNet Technology, Inc.

MicroNet 80MB. **$389**
external hard drive

MicroNet 120MB. **$379**
internal HD for IIci, Quadra 700

MicroNet 414MB. **$1249**
internal HD for IIci, Quadra 700

MicroNet 1001MB. **$1569**
internal HD for Quadra 900/950

MicroNet Raven-040™ 2022MB Disk Array. ..... **call**
internal/external full-height for Quadra 900/950.

MR-45 SyQuest® Removable Hard Drive. . **$449**
42MB capacity, 20ms access time, .5MB per second data transfer, includes one cartridge

NEW **MR-90C SyQuest Removable HD**. **$669**
Can write as well as read 44MB cartridges; 84MB capacity, 19ms access time, 1.25MB per second data transfer

Complete line of MicroNet products available.

SUPERMAC™

SuperMac SuperView™ **$379**
Add large screen color to your black-&-white PowerBook!
On-board encoder lets you use standard TV monitors as your display—even in color. Connect your PowerBook 140 or 170 to large-screen desktop displays or video projection systems.

SuperMac Graphics Cards

Spectrum/8™ si	$249
Spectrum/8•24™ PDQ si	$369
VideoSpigot™ si	$249
Spectrum/8™	$399
Spectrum/8•24™ PDQ	$799
NEW Spectrum/24™ Series IV	$799
Spectrum/24™ PDQ+	$1489
SuperMac ThunderStorm™	$799
SuperMac Thunder/8™	call
SuperMac Thunder/24™	call
NEW SuperMac Thunder II™	call
SuperMac VideoSpigot Pro	$1039

SuperMatch™ 17" Multimode Color Display **$949**
Mac & PC compatible, works w/ Quadra motherboard graphics.

SuperMatch 17•T Trinitron® Color Display. **$1069**
Multiple modes, 1024x768 full-page, 832x624 WYSIWYG, & 640x480 magnified views. Compatible w/ Quadra built-in video.

SuperMatch 20" Color Display. **$1479**
Unsurpassed color, full-page WYSIWYG resolution.

SuperMatch 20•T MultiMode Color Display. **$2449**
20" Trinitron® display. Mac and PC compatible.

SuperMatch 20" Color Dual Mode Display. **$2449**
Flexible viewing, realistic colors for design and publishing

SuperMatch 21" Two-Page Color Display **$2449**
Use directly with Quadra on-board video.

SuperMac DigitalFilm™ . ..... **call**
Includes DigitalFilm Player, DigitalFilm Recorder, and DigitalFilm Encoder, Breakout Box , and Adobe Premiere™ 2.0.

Corporate POs Accepted

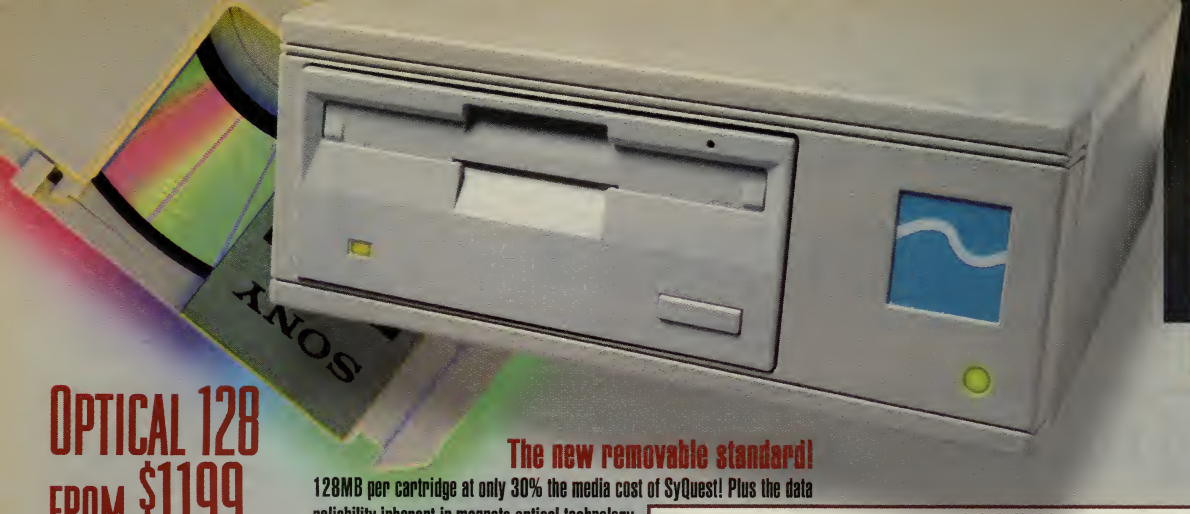
International Orders fax to: (713) 956-5741

• Discover, MasterCard and VISA only. • Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. • Manufacturer's warranties are honored by SYEX Express as well as the original manufacturer. • We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery.) UPS rates are available upon request. • Orders placed by 4 p.m. CST weekdays for "in stock" items will ship that day for overnight delivery • APO/FPO box orders are shipped first class U.S. Mail. P.O. Boxes shipped via US Mail. • We are not responsible for typographical errors. • Defective software will be replaced immediately, and hardware will be repaired or replaced at our discretion. • A Return Authorization Number is required for any product returned. • All trademarks or registered trademarks are property of their respective owners.

1-800-BUY-SYEX

1 - 8 0 0 - 2 8 9 - 7 9 3 9

Open: Mon-Fri: 8 a.m. to 7 p.m.
Sat: 10 a.m. to 5 p.m.
(Central Standard Time)



THIRD WAVE

1(800)882-7555

OPTICAL 128 FROM $1199

Ask about our special offer for qualified service bureaus!

The new removable standard!

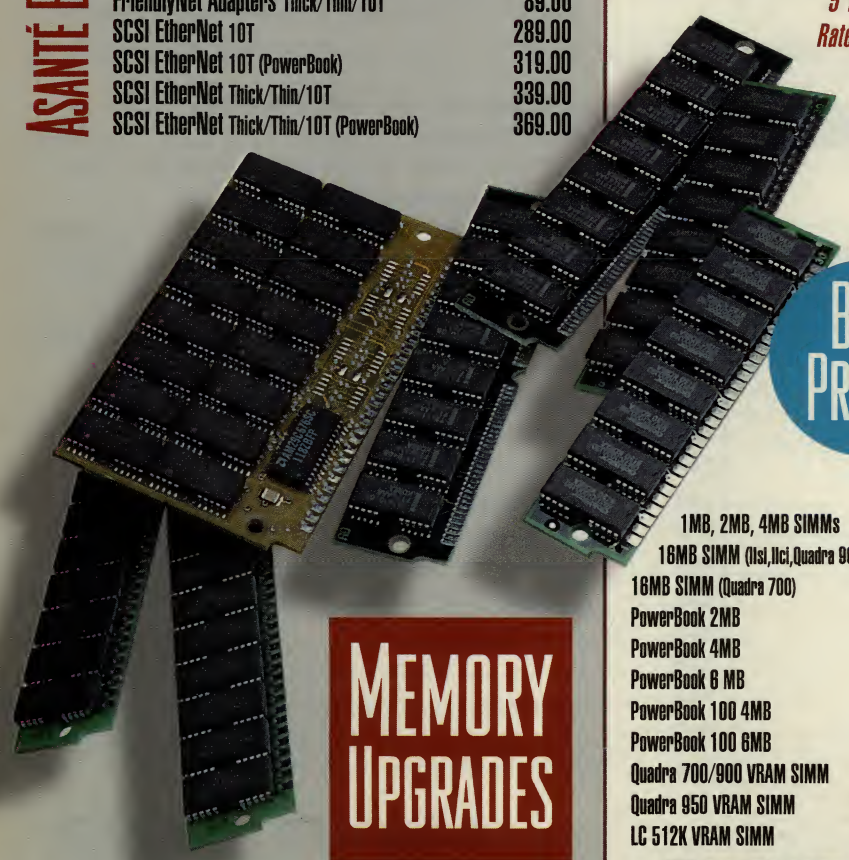
128MB per cartridge at only 30% the media cost of SyQuest! Plus the data reliability inherent in magneto-optical technology. Prices start at $1199 with cartridges only $39.

LOGICA IISI CACHE BUNDLE ONLY $249

INCLUDES 64K CACHE, DUAL SLOT ADAPTER, 20MHZ FPU CHIP

ASANTÉ ETHERNET FROM $169

NuBus or IIsi/SE 30 Thick/Thin or Thick/10T	159.00
NuBus or IIsi/SE 30 Thick/Thin/10T	209.00
LC Thin or LC 10T	159.00
LC Thin/10T	209.00
SE Thick/Thin	159.00
SE Thick/10T	159.00
SE Thick/Thin/10T	209.00
FriendlyNet LC or NuBus (w/Thick/Thin/10T Adapter)	209.00
FriendlyNet IIsi (w/Thick/Thin/10T Adapter)	239.00
FriendlyNet Adapters Thick/Thin/10T	89.00
SCSI EtherNet 10T	289.00
SCSI EtherNet 10T (PowerBook)	319.00
SCSI EtherNet Thick/Thin/10T	339.00
SCSI EtherNet Thick/Thin/10T (PowerBook)	369.00



MEMORY UPGRADES

CACHE CARDS, ACCELERATORS, AND COPROCESSORS

Logica Cache cards for IIsi & IIci speed up performance by 40 percent. 882 FPUs for LC, LC II, Classic II, and the IIsi improve by over 100 percent. For maximum performance, choose Daystar or Logica '030 accelerators, or '040 accelerators from Fusion Data and Radius.

Now Shipping!

LogiCache 50 MHz w/882	1019.00
LogiCache 50 MHz	939.00
Accelerator Adapter	40.00
LogiCache IIci 64K Cache	139.00
LogiCache IIsi 64K Cache	149.00
IIsi Dual Slot Adapter	59.00
20 MHz Math chip for Adapter	69.00
DayStar PowerCache 33,40,50 MHz	CALL
DayStar PowerCache 33,40,50 MHz w/882	CALL
Radius Rocket, Rocket 33, Rocket 25i	CALL
TokaMac 040 Accelerators for LC, IIsi, SE 30, IIci	CALL
16 MHz 882 FPU for Classic II, LC, LC II	69.00

Asante AUI to 10T Adapter	89.00
AsanteHub 1012	849.00
AsanteHub 1700 or 1900 Series	CALL
Asante 10T Hub/8	265.00
Asante 10T Hub/12	559.00

5 Year Warranty Rated Number One by MacUser

BEST PRICES!

1MB, 2MB, 4MB SIMMs
16MB SIMM (IIsi,IIci,Quadra 900/950)
16MB SIMM (Quadra 700)
PowerBook 2MB
PowerBook 4MB
PowerBook 6 MB
PowerBook 100 4MB
PowerBook 100 6MB
Quadra 700/900 VRAM SIMM
Quadra 950 VRAM SIMM
LC 512K VRAM SIMM

CALL FOR LATEST PRICES!

SIMM Prices subject to change, reflect cash discount.

DISPLAY SYSTEMS

SuperMatch color displays 17 - 21 inches.
Spectrum and Thunder video cards.
VideoSpigot, VideoSpigot Pro,
Spigot and Sound, Spigot and Sound Pro.
Radius Precision Color products,
Radius Pivot, Color Pivot.
Call for latest prices on video.

STORAGE SYSTEMS

REMOVABLE MEDIA

All of our DAT drives include a copy of Retrospect 1.3, one DAT cassette, one DAT cleaning cassette, and your choice of SCSI cable.

Optical 128P	1199.00
Optical 600 It's a SONY!	2699.00
45 SR (SyQuest) with cartridge	409.00
88 SR (SyQuest) with cartridge	509.00
DATadrive 2GB	1395.00
DATadrive 8GB	1595.00

CALL FOR PRICING ON ALL MODELS OF MACINTOSH CPUS

DISK DRIVES

	INTERNAL	EXTERNAL
Go 80MB	349.00	
Go 120MB	469.00	
120 MB	349.00	439.00
240 MB	629.00	719.00
520 MB	1049.00	1139.00
830 MB	1269.00	1359.00
1.2 GB	1599.00	1689.00
1.5 GB	CALL	CALL
2.0 GB	CALL	CALL
1.2 GB 3.5"	2129.00	2219.00

830 MB TOSHIBA DRIVE ONLY $1269!

Drive Prices guaranteed to be at or below listed prices. Call for latest. SyQuest, Optical, and DAT available internally for Quadra 900 and 950!

MEDIA

SyQuest 45 MB cartridge	68.00
SyQuest 88 MB cartridge	115.00
DAT cassette 60 meter	12.00
DAT cassette 90 meter	16.00
Optical cartridge (ISO) 512 kb/sector	110.00
Optical cartridge (ISO) 1024 kb/sector	110.00
Optical cartridge 128 MB	39.00

COMPARE OUR DAT DRIVES TO THEIRS.

	Third Wave DATadrive	The Other Guys
Warranty	5 years	2 years
Price: 2GB	1395.00	1399.00
Compression (8GB)	1595.00	1699.00 (only 5GB)
Firmware Upgrades	From tape	Chip replacement
Upgrade Method	User install	Vendor install
OEM	Hewlett Packard	Archive
Form factor	3.5"	3.5"
MTBF	50,000 hours	40,000 hours
Software	Retrospect	Retrospect

THIRD WAVE COMPUTING, INC. 18268 Kramer Lane Austin, TX 78758 (800)882-7555 (512)832-8282 FAX (512)832-1533

International orders call (512)832-8282. We accept Visa, Mastercard, American Express, and Discover.
Corporate, educational, and government purchase orders accepted. Most deliveries via Federal Express.

AIRBOURNE COMPUTER TECHNOLOGIES

800·436·8207

· Top Products, Prices, and Service ·

Direct Sales & Support
406·256·5800
Fax Number
406·256·5810

Hard Drives

Quantum

Unformatted Capacity	Access Time	Internal	Externall
GO•Drive 2.5" Hard Drive (All Quantums - 2 year Warranty)			
80 mb	17 ms	$319	$419
120 mb	17 ms	$449	$549
160 mb	17 ms	$519	$619
ELS Series (3.5" Low Profile and Low Power Drives)			
42 mb	19 ms	$175	$229
85 mb	17 ms	$214	$268
127 mb	17 ms	$289	$349
170 mb	17 ms	$319	$379
LPS Series (3.5" Low Profile and Low Power Drives)			
240 mb	10 ms	$439	$498
525 mb	10 ms	$939	$998
Prodrive Series (3.5" Half Height Drives)			
700 mb	10 ms	$1189	$1248
1.0 Gig	10 ms	$1359	$1419
1.2 Gig	10 ms	$1589	$1649

Seagate

3.5" Low Profile Drives (2 year Warranty)			
1.2 Gig	10.5 ms	$1529	$1589
Wren and Elite Series (5.25" Full Height Drives)			
Wren 7 1.2 Gig	15 ms	$1394	$1494
Wren 8 1.6 Gig	15 ms	$1709	$1809
Wren 9 2.1 Gig	12.5 ms	$1929	$2029
Elite 1 1.6 Gig	11.5 ms	$1989	$2089
Elite 2 2.4 Gig	11 ms	$2868	$2968
Elite 3 3.4 Gig	11 ms	$3909	$4009

Toshiba

3.5" & 2.5" Disk Drives (2 year Warranty)			
2.5" 213 mb	12 ms	$648	$748
3.5" 830 mb	12 ms	$1128	$1228
3.5" 1.2 Gig	12 ms	$1468	$1568

Conner

3.5" Disk Drives (2 year Warranty)			
42 mb LPS	17 ms	$158	$228
85 mb LPS	17 ms	$209	$258
120 mb LPS	12 ms	$268	$328
170 mb LPS	12 ms	$289	$358
212 mb LPS	9 ms	$368	$438
540 mb	8.5 ms	$889	$968

Fujitsu

3.5" & 5.25" Disk Drives (5 year Warranty)			
3.5" 330 mb	9 ms	$838	$888
3.5" 520 mb	9 ms	$908	$988
3.5" 1.1 Gig	8.5 ms	$1748	$1868
5.25" 1.2 Gig	11.5 ms	$1368	$1428
5.25" 2.06 Gig	11.5 ms	$2318	$2398
5.25" 2.4 Gig	11.5 ms	$2478	$2548

SyQuest

Unformatted Capacity	Access Time	Price
Includes one free cartridge (2 year Warranty)		
44 mb	19 ms	$398
88 mb	19 ms	$489
88C mb	19 ms	$589

Opticals

Includes one free disc (1 year Warranty)		
128 mb Panasonic Optical	39 ms	$998
128 mb Epson Optical	29 ms	$1078
256 mb Most Optical	31 ms	$1698

DAT Drives

Unformatted Capacity	With DIO Backup	With Retrospect
Includes one free DAT Tape & your choice of DIO Backup or Retrospect		
2.1 Gig	$998	$1098
5.0 Gig	$1398	$1498

Accessories

Powerbook cable	$30
3 Ft. 50/50 cable	$20
6 Ft. 50/50 cable	$25
Half High Cab w/ AC outlets	$90
Full High Cab w/AC outlets	$125
Half High Cab w/o AC outlets	$80
MicroCab	$90

Media

Model	QTY 1	5PK	10PK	Model	QTY 1	5PK	10PK
SyQ44 cart	$72	$67	$65	SyQ 88 cart	$119	$104	$99
128mb OPT	$49	$44	$39	256mb OPT	$88	$84	$79
60mm DAT	$20	$16	$14	90mm DAT	$25	$19	$17

Simms

Model	60 NS	70 NS	80 NS	Model	60 NS	70 NS	80 NS
1x8	Call	Call	$33	2x8	Call	Call	$63
4x8	Call	Call	$123	16x8	Call	Call	$306
16x8 FX	Call	Call	$549	16x8 Q950	Call	Call	$560
PB140/170 2mb module			$95	PB160/180 4mb module			$219
PB140/170 4mb module			$169	PB160/180 6mb module			$279
PB140/170 6mb module			$225	PB160/180 8mb module			$369
256 Q950 VRAM			$31	PB160/180 10mb module			$469
256 Q700,900 VRAM			$31	512k VRAM IIVX,LC			$55

730 Main • Suite 102-556 • Billings, MT 59105

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. All new drives, preformatted with latest stable system software. Factory warranty. Bracket, cables and software included. 30 Day Money back Guarantee covers drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

Scanners

Microtek

Model Includes free software	Price
Scanmaker II - Color w/free Photoshop LE	$948
Scanmaker IIXE - Color w/free Photoshop	$1248

Umax

Includes free software	
UC630 - Color w/free Photoshop	$1078
UC1200s - Color w/free Photoshop	$2948
UC840 - Color w/free Photoshop	$1248
Transparency Unit	$698
Auto Document feeder	$398
UG600 - Greyscale w/free Typereader OCR, OFOTO & Publish It	$848

Accelerators

DayStar Digital

Model	Without FPU	with FPU
33 MHZ Powercache	$398	$479
40 MHZ Powercache	$559	$649
50 MHZ Powercache	$729	$859
Powercache Adapter		$41
Equalizer LC	$169	$239
Fast Cache IIsi	$279	$349
Fast Cache IIci		$215
Fast Cache Quadra		$259
Fast Cache Q 950		$399
33 MHZ Turbo 040		$1429
Fast Cache Turbo 33-12		$359

Modems

Prometheus

	Price
Ultima Home Office ext 14.4/14.4SR Fax w/ V.42 bis & voice	$398
Promodem 144i Internal PBK 14.4/14.4SR Fax w/ V.42 & V.42 bis	$278
Promodem 144e ext 14.4/96SR Fax w/ V.42 & V.42 bis	$278
Promodem 24e ext 24/96SR Fax w/ V.42 & V.42 bis	$128
Promodem Mini 2400 2400 BPS mini, data only	$79

Zoom Telephonics

All units come with Microphone LT Software	Price
Faxmodem PBK for Internal Powerbook 96/48 SR Fax w/2400 BPS Modem	$109
Faxmodem PKT Portable 96/48 SR Fax w/2400 BPS Modem	$129
Faxmodem FXV V42 bis/MNP5/2400 BPS, 96/96 SR Fax	$169
Faxmodem FXV.32 V.32 bis,14.4 data & fax, V.42 bis/MNP5	$289

Hours: 7:30 - 5:00 Mountain Time • Technical Service and Order Tracking 7:30-5:00 Mountain Time 406-256-5800

Mac & PC USA

800-392-5818

International (714)572•5350
24•Hour FAX (714)572•5363
Office Hours: M-F 6:00AM•6:00PM•PST
Sat 10:00AM•2:00PM•PST
5761 E. La Palma Ave • Suite 182 • Anaheim CA 92807

STORAGE WORLD

SyQuest TECHNOLOGY

Model	
External SyQuest 44mb (*One Cartridge Inc.)	$389
Exernal SyQuest 88mb (*One Cartridge Inc.)	$489
External SyQuest 88mb C** (*One Cartridge Inc.)	$589
Internal 44mb SyQuest (for Quadra 900&950)	$349
Internal 88mb SyQuest (for Quadra 900&950)	$469
Internal 88mb C SyQuest (for Quadra 900&950)	$559
External SyQuest Dual 44mb (*One Cartridge Inc.)	$725
External SyQuest Dual 88mb (*One Cartridge Inc.)	$895
External SyQuest Dual 44/88mb (*One 44 & One 88 Cartridge)	$895
External SyQuest Dual 88C mb (*One Cartridge Inc.)	$1075
External SyQuest Dual 44/88C mb (*One 44 & One 88 Cartridge)	$999
SyQuest 44mb Cartridge/10 Pack	$63/$620
SyQuest 88mb Cartridge/5 Pack	$97/$480

All SyQuest Drives come with FWB™ HDT Formatting Software. SyQuest carries a TWO year Warranty on Drives and ONE year on Cartridges.
* READS AND WRITES 44 AND 88 CARTRIDGES. Does not format 44 cartridges.

Quantum

"An Apple Authorized Brand"

Unformatted Capacity	Speed	Size	Internal	External
*GO•80mb	16ms	2.5"PB	$299	$399
*GO•120mb	16ms	2.5"PB	$439	$539
*GO•160mb	16ms	2.5"PB	$519	$619
LPS 240mb	10ms	3.5"TH	$439	$499
LPS 525mb	10ms	3.5"TH	$939	$999
ELS 42mb	19ms	3.5"TH	$175	$235
ELS 85mb	17ms	3.5"TH	$215	$275
ELS 127mb	17ms	3.5"TH	$289	$349
ELS 170mb	17ms	3.5"TH	$319	$379
Pro 425mb	9ms	3.5"TH	$879	$939
Pro 700mb	10ms	3.5"TH	$1189	$1249
Pro 1.0	10ms	3.5"HH	$1359	$1419
Pro 1.2	10ms	3.5"HH	$1589	$1649

TWO year Warranty. *ONE year Warranty on GO drives.
FWB™ HDT Formatting Software Included.

MAGNETO OPTICAL DRIVES

TEAC

Model	Speed	Size	External
128mb	45ms	3.5"HH	$989
128mb cartridges (Tosoh)			$39

RICOH

Model	Speed	Size	External
650mb	28ms	5.25"FH	$2375
128mb	45ms	3.5"HH	$1075
128mb/650mb Cartridge			$39/95

Maxtor®

Model	Speed	Size	External
Tahiti II	35ms	1.0gb	$3195
1.0gb Optical Glass Cartridge			$225

All MO drives come with FWB HDT software, ONE MO cartridge and have a ONE year Warranty.

TAPE BACK-UP DRIVES

ARDAT

Model	External
4.0gb - 8.0gb HC	$1385
2.0gb	$1185
90m / 60m Tape	$25/$19

TEAC

Model	External
600mb Tape Backup Drive	$685
150mb Tape Backup Drive	$485
600mb / 150mb Tape Cassette	$29/$19

All tape backup drives come bundled with FREE Retrospect V.1.3, one tape and have a ONE year Warranty.

FUJITSU

Unformatted Capacity	Speed	Size	Internal	External
425mb	9ms	3.5"HH	$849	$909
520mb	9ms	3.5"HH	$899	$959
1.2gb NEW!	9ms	3.5"HH	$1739	$1799
1.2gb	15ms	5.25"FH	$1399	$1499
2.0gb	15ms	5.25"FH	$2349	$2449
2.4gb	12ms	5.25"FH	$2549	$2649

FIVE year Warranty.
FWB™ HDT Formatting Software Included.

HEWLETT PACKARD

Unformatted Capacity	Speed	Size	Internal	External
1.2gb	11ms	3.5"HH	$1895	$1955
1.2gb	14ms	5.25"FH	$1665	$1765
1.6gb	14ms	5.25"FH	$1995	$2095
2.2gb	19ms	5.25"FH	$2595	$2695
2.4gb	19ms	5.25"FH	$2995	$3095

FIVE year Warranty.
FWB™ HDT Formatting Software Included.

TOSHIBA

Unformatted Capacity	Speed	Size	Internal	External
830mb	12.5ms	3.5"HH	$1095	$1155
1.2gb	12.5ms	3.5"HH	$1495	$1555
CD-ROM				
600mb	200ms	3.5"HH	$585	$635

Toshiba carries a THREE year Warranty on drives. ONE year Warranty on CD Rom.
Toshiba Formatting Software Included.

MICROPOLIS

Unformatted Capacity	Speed	Size	Internal	External
1.0gb	10ms	3.5"HH	$1635	$1695
2.0gb	12ms	5.25"FH	$2695	$2795

Fast SCSI-2 Drives. FIVE year Warranty.
FWB™ HDT Formatting Software Included.

Maxtor®

Unformatted Capacity	Speed	Size	Internal	External
120mb	15ms	3.5"TH	$265	$325
213mb	15ms	3.5"TH	$385	$445
340mb	15ms	3.5"HH	$635	$695
535 mb	12ms	3.5"HH	$955	$1015
540 mb NEW!	9ms	3.5"HH	$995	$1055
1.2gb NEW!	9ms	3.5"HH	$1655	$1715
1.2gb	13ms	5.25"FH	$1395	$1495
1.7gb	13ms	5.25"FH	$1695	$1795

ONE year Warranty on 3.5" Drives and TWO Years on 5.25" Drives and 120mb/213mb Drives.
FWB™ HDT Formatting Software Included.

CONNER

"An Apple Authorized Brand"

Unformatted Capacity	Speed	Size	Internal	External
85mb	17ms	3.5"TH	$215	$275
120mb	19ms	3.5"TH	$279	$339
170mb	13ms	3.5"TH	$315	$375
212mb	12ms	3.5"TH	$415	$475
540mb	12ms	3.5"HH	$979	$1039

TWO year Warranty.
FWB™ HDT Formatting Software Included.

Software

Adobe Illustrator v3.2	$379
Adobe Photoshop v2.0.1	$569
Adobe Premiere v2.0	$439
Adobe Streamline v2.2	$129
Adobe Type Manager (ATM) v2.2	$69
Microsoft MacFile v2.0	$129
Microsoft MacFile v3.1 (Server & 1 User)	$259
Microsoft MacMail v3.1 (Server & 1 User)	$259
Microsoft MacPowerPaint v3.0	$319
Microsoft MacSchedule v1.0	$129
Microsoft MacWord v5.1	$319
Microsoft Mac Excel v4.0	$319
Microsoft Office v3.0	$479
Microsoft Mac Project v3.0	$449

NEC

MultiSync 3FGx – 15" Monitor	$615
MultiSync 4FG – 15" Monitor	$735
MultiSync 5FG – 17" Monitor	$1305
MultiSync 6FG – 21" Monitor	$2355
FG8x 8-bit board	$645
FG24x 24-bit board	$1205
FG24xp 24-bit board	$495
CD-ROM CDR-37	$425
CD-ROM CDR-74	$625
SilentWriter 95F Printer	$1385
SilentWriter 95FX Printer	$1855
SilentWriter 97F Printer	$1755
SilentWriter 97FX Printer	$2199

NEC MultiSync 4FG Monitor
- 15" Multi-Frequency Color Monitor
- AccuColor Control System
- Up to 1024x768 resolution

MacUser August 1992

$735

NEC SilentWriter Model 95f Laser Printer
- PostScript Level 2
- Envelope feeder and cassette included
- *3-year on-site warranty (Limited time offer)*

MacUser September 1992

$1385

RasterOps®

21" Mono/Gray-Scale Monitor	$999
21" Color Hitachi	$2599
20" Color Trinitron MultiScan	$2149
20" Color Hitachi MulitScan	$1349
24 STV Interface	$779
24 SX Interface	$619
8 XLI Interface	$929
Paintboard 24	$1549
Paintboard LI	$849
CorrectPrint 300	$6949

radius

PrecisionColor Display/20 or 20s	$2399
PrecisionColor 19	$2099
PrecisionColor Pivot	$949
PrecisionColor 24XK Interface	$839
PrecisionColor 24XP Interface	$509
PrecisionColor 8X Interface	$759
VideoVision (Basic)	$1729
VideoVision (Presentation)	$1949
Rockets 25i	$1199
Rockets 33	$1949
RocketShare	$419
SCSI-2 Booster	$259

SUPERMAC™

SuperMatch 21" Color Monitor	$2499
SuperMatch 17" Color Monitor/Multimode	$1179
Two-Page 21" Platinum Monitor	$999
SuperMatch 17T Color Trinitron Monitor	$1099
Thunder/24	$2349
Spectrum 24 PDQ Plus	$1549
Thunder/8	$1169
Spectrum/8 • 24 PDQ	$839
Spectrum 8 • 24	$589
VideoSpigot Nubus	$379
Spigot and Sound Pro	$1179
Digital Film	$4669

SONY®

1302 - 14" Color Trinitron	$599
1304S - 14" Color Trinitron	$619
1320LC - 14" Color Trinitron for LC	$429
1604S - 16" Color Trinitron	$1089

***Includes MAC Adaptor. Quadra compatible.**

HEWLETT PACKARD

HP Deskwriter 550-C	$799
HP LaserJet 4M	$2099

***Prices include cable.**

GCC TECHNOLOGIES

WriteImpact 24-Pin	$499
PLPII 1mb/4ppm/300dpi	$799
PLPIIS 1mb/8ppm/300dpi	$1099
BLPII 2mb/4ppm/300dpi	$1519
BLPIIS 2mb/8ppm/300dpi	$1769
BLPIIS 4mb/8ppm/300dpi	$2199
BLP Elite 2mb/4ppm/300dpi	$1179
BLP Elite 2mb/8ppm/300dpi	$1429
WideWriter 360 512k/360dpi	$1429

UMAX®

UC - 1200S with Adobe PhotoShop™ v2.0.1	$2999
UC - 840 with PhotoShop™ v2.0.1	$1299
UC - 630 with Adobe PhotoShop™ v2.0.1	$1099
Automatic Document Feeder	$489
Transparency / Slide Scanner Option	$689

MICROTEK

ScanMaker II w/Adobe Photoshop LE	$895
ScanMaker IIXe w/Adobe Photoshop FV	$1175

ASANTÉ

MC3NB - Thick/Thin/10 Base T, 64k	$199
MC+IIE64 - Thick/Thin, 64k	$149
MC+IIET64 - Thick/10 Base T, 64k	$149
MC+LCII - Thin/10 Base T, EPU Socket	$199

*** We carry the full line of Asante Products.**

DAYSTAR DIGITAL

Turbo 040 25 MHz	$1109
Turbo 040 33 MHz	$1369
Fastcache Turbo 25-128k cache	$259
Fastcache Turbo 33-128k cache	$345
FastCache Quadra (700 & 900) - 128K	$249
FastCache Quadra (700, 900 & 950) - 128K	$389
PowerCache 33MHz OR w/ FPU	$385/$475
PowerCache 40MHz OR w/ FPU	$555/$645
PowerCache 50MHz OR w/ FPU	$735/$865
PowerCache Adapters*	$42

*** Additional on all PowerCache cards except for IIci**

MAC SYSTEMS

Classic Color 4/80 ***NEW!***	$1499
LC III 4/80 ***NEW!***	$1349
IIVX 4/80 – 4/230 – 5/80 w/CD-Rom	$1799/$2149/$2199
Quadra 700 4/0	$2299
Quadra 800 8/230 ***NEW!***	$4149
Quadra 950 8/0	$4949
Centris 650 4/80 ***NEW!***	$2549
StyleWriter II ***NEW!***	$339
Apple LaserWriter Pro 600/630	$2009/$2419
Powerbook 160 4/40 – 4/80 – 4/120	$2309/$2619/$2839
Apple 14"/16" Color Monitor	$529/$1279
Duo 230 4/80 – 4/120	$2499/$2849
Apple Adjustable Keyboard ***NEW!***	$219

POWERBOOK/DUO ACCESSORIES

All the extras for upgrading your PowerBook or Duo...

PowerBook 160/180 Memory 4mb/6mb/8mb/10mb	$195/$295/$395/$495
PowerBook Cables (HDI 30-25 or 50)	$35
Radius PowerView for Powerbooks	$499
External Battery Recharger PowerBook	$149
PowerPad-Sophisticated Circuits	$99
PowerBook Battery	$79
Auto Power Adapter	$89
GCC WriteMove II Printer	$499

Duos:

Duo 210/230 Memory 4mb/8mb	$295/$545
Duo Floppy Adapter	$135
HDI-20 Ext. 1.44mb Floppy Drive	$199
Duo A/C Adapter	$65
Duo Rechargable Battery	$69
Duo Dock	$1079
Apple Mouse	$79

Carrying Cases:

I/O Design Ultimate SL/EX - nylon	$69/$79

Check out our GO Drives in the Quantum Section!

MACINTOSH SIMMS

1x8/2x8/4x8/16x8 @ 80ns	$32/$62/$125/$525
Quadra 700/950	
4x8/16x8	$125/$525
Powerbook 140/170	
4mb/6mb/8mb	$179/$255/$355
Powerbook 160/180	
4mb/6mb/8mb/10mb	$225/$295/$395/$445
Duo 210/230	
4mb/8mb	$299/$499
PC 1x9/4x9	$39/$139

PSI

COMstation One	$139
COMstation Two	$239
COMstation Four	$349
COMstation Five	$419
PowerModem I	$129
PowerModem II	$229
PowerModem III	$319
PowerModem IV	$379

US Robotics®

Mac&Fax SPORTSTER Modem 14.4bps, Send/ Receive FAX Modem	$315
WorldPort FAX 459	$459

WACOM

6x9 Standard Tablet	$462
12x12 Standard Tablet	$660
12x12 ElectroStatic Tablet	$726
12x18 Standard Tablet	$990
12x18 ElectroStatic Tablet	$1058

- International inquiries welcomed.
- We also speak Spanish, German and French.
- Toll-Free Customer Technical Support.
- Fortune 500, Educational and Government P.O.'s welcomed upon credit approval.
- Mac & PC does not guarantee product compatibility.
- Prices, Terms and Availability subject to change without notice.
- Product names in this advertisement are ™ or ® of their respective companies.

- All returns require an RMA number and are subject to restocking fee.
- C.O.D., Cashiers, Company & Personal Checks accepted upon credit approval.

VISA MasterCard AMERICAN EXPRESS DISCOVER

- Apple/Macintosh products have a ONE year warranty only through Mac&PC USA, Inc. We are not an Apple Authorized Dealer.

TO PLACE AN ORDER, PLEASE CALL US AT THIS NUMBER:

(800) 392 • 5818

FOR ALL OF YOUR PC NEEDS, CALL:

(8 0 0) 3 9 2 • 5 8 4 0

THE WORLD
DRIVE DESIGN
EVEN FAST

THE DEC DSP-3105 1-GIG DRIVE

Gentlemen, start your engines. Introducing the DEC DSP-3105 1-gigabyte drive. This Eddy award-winning monster moves like Ricochet Rabbit on double espresso. In fact, it's the world's fastest 3.5 inch drive. Thanks, in part, to a 5400 RPM spindle speed and a whopping 512K drive cache. With our minimum-footprint Cyclone™ enclosure, a great price, and 5-year warranty, no one can touch it for value. Says *MacUser.* it's "a dream drive mechanism for most Mac users."

Cyclone enclosure	**$1899**
Classic-style footprint enclosure	**$1849**
Internal	**$1799**

Hey! What the heck is a Cyclone Drive, anyhow?

No need to yell. Cyclone is our name for the small footprint "brick" drives in our line. Our highest performers. They feature a sturdy metal enclosure (You know those black boxes you read about that survive in plane crashes? They're made of metal, too. A coincidence? We think not). A rugged, continuous-use, auto-switching 40-watt power supply, compatible around the globe. And class B FCC approval. They're small, yet, they crank. Perfect for use with those huge Macs that take up a lot of your desk's real estate. Available as a DAT drive or hard discs from 512 MB and up. Oh, yeah, one more thing: to our knowledge, no one offers a better value on small footprint, high capacity drives. Check it out.

CYCLONE DAT DRIVES

If you're looking for DAT, you'll love dis. Cyclone DAT drives. They feature the zephyr-like Wang DAT drive mechanism – the industry standard for reliability. Our own Cyclone small-footprint chassis. And a price that won't dis you. Our standard Cyclone DAT drive has a 2.0 GB capacity. The compression model, up to 5 gigs. Both come with Dantz™ Retrospect back-up software, and a 90-meter DAT tape, free. Dat's all you need.

Cyclone Standard DAT	**$1199**
Cyclone Compression DAT	**$1349**

ORDER DIRECT. CALL:

O'S FASTEST
NED TO MOVE
TER. $1899.

SYQUEST 5110C 88/44 DRIVE

You want to upgrade your removable drive to 88 megs, but you've got a shelf full of old 44s staring you in the face. You have two options. One, use the old cartridges as coasters at geek cocktail parties. Or two, buy the new Spin Syquest 5110C drive that reads and writes both 44 and 88 meg cartridges. True, this drive does not format 44 MB cartridges, but we have a way around that – pre-formatted 44s.

Syquest 5110C 44/88 Drive	$599
Syquest 88 MB Removable	$499
Syquest 44 MB Removable	$399
Syquest Media	
Unformatted 44 MB	$61
Unformatted 88 MB	$99
Formatted 44 MB	$85
Formatted 88 MB	$139

ZERO FOOTPRINT DRIVES

We've gotten letters lately – mostly in crayon – from a few folks asking why we call these drives "zero footprint" when they obviously exist in three dimensions and take up space. We'd like to point out that when placed under your Plus or Classic or SE it takes up no more space than the computer already does. Zero. Neat trick, huh? Our sturdy zero-footprint drives feature a number of different mechanisms from makers like Conner, Quantum, Toshiba. Check the matrix below for the capacity you need. And please, put down that crayon.

Capacity (MB)	Model Number	Average Access Time (msec)	Transfer rate (K/sec)	MTBF (Hours)	MFG warranty (months)	Internal Drive Price	External Drive Price	Cyclone Drive Price
Connor								
85	CP-30080E	16	1300	150000	24	$219	$289	
120	CP-30100	16	1300	150000	24	$279	$349	
170	CP-30170E	16	1400	150000	24	$319	$379	
213	CP-30200	15	2000	150000	24	$419	$479	
Quantum								
42	ELS 42S	19	1600	250000	24	$185	$249	
85	ELS 85S	17	1800	250000	24	$229	$299	
127	ELS 127S	17	1800	250000	24	$319	$379	
170	ELS 170S	17	2000	250000	24	$349	$409	
240	LPS 240S	16	2300	250000	24	$499	$569	
525	LPS 525S	10	2900	350000	24	$1069	$1119	$1169
80 (Pwrbk)	GRS•80	17	1900	150000	12	$349		
120 (Pwrbk)	GRS•120	17	1800	150000	12	$469		
160 (Pwrbk)	GRS•160	17	1900	150000	12	$519		
Toshiba								
870	MK-438	12	1500	250000	36	$1099	$1159	$1199
1.2 GB	MK-538	12	2800	250000	36	$1449	$1499	$1549
DEC								
1.05GB	DSP-3105	9.5	2600	250000	60	$1799	$1849	$1899

Spin, The Spin tornado and Cyclone are trademarks of Spin Peripherals, Inc. All other trademarks are the property of their respective holders.

30 DAYS TO DECIDE.

If you're not satisfied, neither are we (we're referring, of course, to Macintosh peripherals only). That's why every Spin product comes with a 30-day money back guarantee. Test-drive any Spin product. Give it a real workout. If you're not happy, return it within 30 days for a refund. Was that good for you?

MORE THAN JUST A LOW PRICE.

Flip through these pages (not right now, it's just a figure of speech), and you'll see a lot of low prices. The difference with Spin is that you get more. And not just a little more. We include many free things that others charge you for. Like a double-shielded SCSI cable. External terminator. A power supply designed for constant use. Not to mention our own Spin Disk Utilities with free upgrades for a year, system software, and unlimited tech support as long as you own a Spin drive. We aim to please. Call one of the other guys and ask what they'll give you for free. The cardboard box? The owner's manual? Then call us back.

Spin™
PERIPHERALS

381 Elliot Street, Newton, MA 02164-1162
Phone: 1-617-965-9882 Fax: 1-617-965-6257

1-800-466-1200

VISA MasterCard

MWK31

TELL US YOUR NEEDS...

PRINTERS

TI MicroLaser Plus
$1195

Texas Instruments

MicroLaser Plus w/AppleTalk 1,195
MicroLaser XL Turbo 2,789

Lexmark IBM

LaserPrinter 6P 1,549
LaserPrinter 6A 1,729
LaserPrinter 10L 1,719
LaserPrinter 10A 2,219

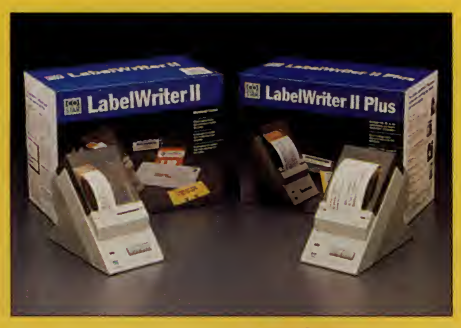
NEC

SilentWriter Model 95 ... 1,495

Panasonic

Postscript KX-P4455 1,979

$1495
NEC SilentWriter Model 95



COSTAR CORP.

LabelWriter II 185
LabelWriter II Plus 250
AddressExpress 689
AddressWriter 465

We also stock LabelWriter II and LabelWriter II Plus labels. Please call us for best pricing and quantity discounts.

$185
CoSTAR LabelWriter II

$85
CoSTAR Stingray Turbo Mouse

MISCELLANEOUS

SIMMs Installation Toolkit 8
Maxima 2.0 44
Optima / 32 149
Virtual 3.0 139
LC Video-RAM 512K 50
Quadra Video RAM (256K-80ns) 31
Mac 101 Keyboard 120
Kensington Turbo Mouse 106
LC 16mhz Math Co-Processor 59
Classic II Math Co-Processor 59
TechWorks Cache Card IIci 145
Tech Works IIsi PDS Adaptor (20MHz) 95

LB INDUSTRIES

Wristsaver: 12
Wristwaver Mousepad 12
Wristsaver/Mousepad bundle 20
Your choice of Royal Blue, Red, Black, Gray, Navy

MISCELLANEOUS HARDWARE

Rasterops 24STV Video Display Brd . 789
Video Spigot NuBus 469
Video Spigot IIsi 379
Video Spigot LC 399
Video Spigot Pro NuBus 1,369
Video Spigot Pro IIsi 1,285

MODEMS

DOVE COMPUTER CORP

DoveFax PB 99
The DoveFax PB features a 9600 bps send/4800 bps receive Group III fax modem and a 2400 bps Hayes compatible data modem for the PowerBook

DoveFax Pro + V 489
The DoveFax Pro+ Voice features a 14.4 kbps send/receive personal fax machine, a 14.4 kbps data modem plus a voice answering system for your Macintosh.
DoveFax 144E 299
The Dove Fax 1443 is an external Group III S/R fax modem with fax software and 14.,4 kpbs modem with v.42bis.

COMPARE OUR SHIPPING PRICES

AIRBORNE EXPRESS OVER NIGHT $6 AND UP • UPS GROUND $5 AND UP
Orders received before 7:30 PM Eastern time weekdays ship the same day. • We export to most countries in the world. 2-3 days delivery to most countries. • Prices subject to change. Quantity pricing for dealers. • All returns require approval and are subject to a restocking fee.
American Express, Visa, MasterCard, & Discover Cards gladly accepted.
Your card is not charged until the order is shipped.

FAX YOUR ORDER 24 HOURS A DAY (206) 454-7302

THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258

1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time

GET THE BEST SOLUTION

MORE MODEMS

$349

Supra v.32bix S/R Fax

Supra

v.32bis S/R Fax 14.4 305
v.32bis S/R Fax14.4w/cbl &SW 349
2400 Modem ONLY (NO CABLE) 74
Fax 2400/9600/9600 169

Global Village

PowerPort Gld 14.4/96 438
PowerPort Silver 96 375
PowerPort Brnz 24/96 208
Teleport Gold 14.4/14.4 438
Teleport Silver 96 375
Teleport Bronze 24/96 208

Zoom Modems

AMX 2400 bps Modem 68
FXV 2400/9600 S/R Fax 139
VFXV 32 bis 14.400 fax 279

$188

PSI

PowerModem for PB

Power Modem for PB 24/96/48 188
Power Modem III for PB 96/96 375
Power Modem IV for PB 14.4 438

POWERBOOK MEMORY

2 MB Upgrade- PB100/140/170 85
4 MB Upgrade- PB100 195
6 MB Upgrade- PB100 249
4 MB Upgrade- PB140/170 195
6 MB Upgrade- PB140/170 239
4 MB Upgrade- PB160/180 199
6 MB Upgrade- PB 160/180 279
8 MB Upgrade- PB 160/180 385
10 MB Upgrade- PB 160/180 465
4 MB Upgrade - PBD40 210/230 210
8 MB Upgrade PBD40 210/230 379

POWERBOOK ACCESSORIES

Carrying cases Black/Blue/Teal 75
140/170/160/180 Replmnt Battery 79
External Battery Charger (PB100) 145
Battery Chgr (PB140/170/160/180) .. 149
Automobile Powerbook Adapter 69
CPU- Connectix Powerbook Utilities .. 45
PowerBook Installation Kit 7.50

$799

BookView Imperial

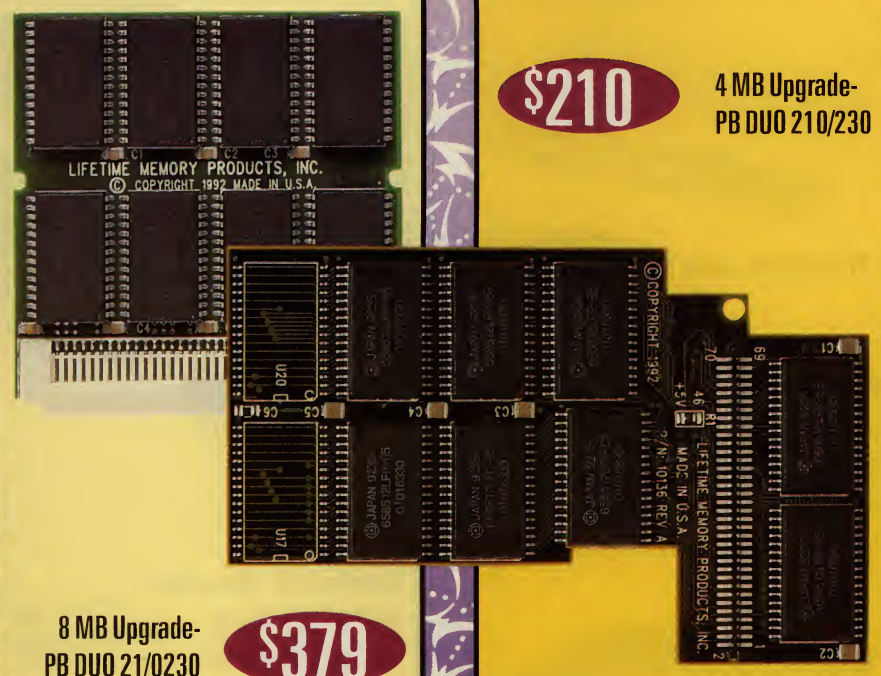
BOOKVIEW™ IMPERIAL

BookView Imperial provides the ability to use a variety of large screen displays, up to 19" monitors, adding even more flexibility to the PowerBooks.

Bookview Imperial offers the following:

- 8-bit color (256 color) upto 19" monitors
- Interface to most monitors
- Adapter filts in PowerBook Case
- Piggyback Apple 2MB RAM card, for 8 MB total RAM
- 1 year warranty
- Low power Consumption.

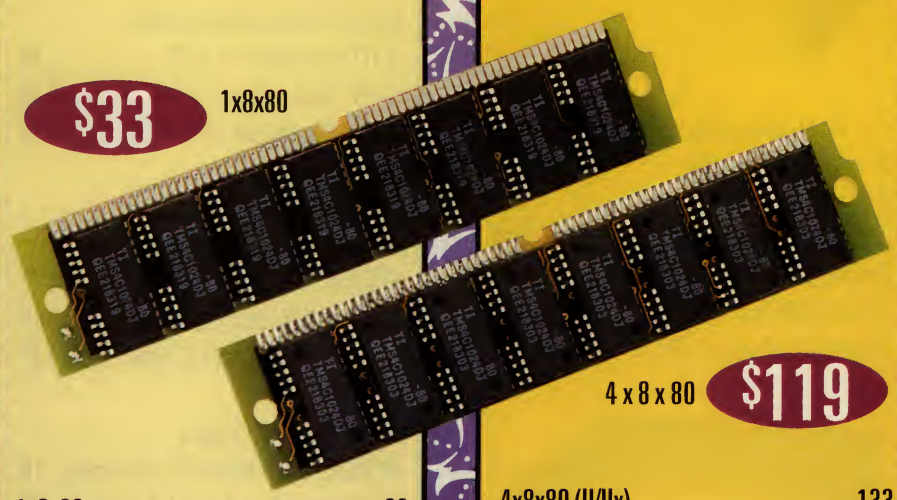
SIMMS FOR YOUR NEW



8 MB Upgrade-
PB DUO 21/0230

$379

$33 1x8x80



4 x 8 x 80 $119

1x8x80 33
1x8x70 35
1x8x60 37
1x8x100 31
1x8x80 (fx) 35
1x8x70 (fx) 37
2x8x80 61
2x8x70 63
4x8x80 119
4x8x70 121
4x8x80 (fx) 122
4x8x70 (fx) 124

POWERBOOK DUO

$210

4 MB Upgrade-
PB DUO 210/230

4x8x80 (II/IIx) 133
4x8x70 (II/IIx) 135
8x8x80 299
8x8x80 (fx) 299
16x8x80 (High Profile) 475
16x8x80 (Low Profile) 599
16x8x80 (fx) 489
1 MB Classic Expansion Card 59
3 MB Classic Expansion Card 115
1x9x70 (PC) 38.50
4x9x70 (PC) 130
Mac Portable 3MB 410
Mac Portable 4MB 449

THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258

1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time

ORDER TODAY...

PLI DRIVES

PLI Infinity 88 Turbo **$639**

PLI Super Floppy	319
Infinity Floptical 21 MB	379
Infinity 40 Turbo	519
Infinity 88 Turbo	639
Infinity 88RW44	699

PLI Multi-Session CD-ROM **$699**

PLI Multi-Session CD-ROM	699
Infinity 3.5" 128 Optical	1,279
Infinity 600 MB Optical	2,629
Infinity MaxOptical 1GB	3,599

PLI 85 MB Turbo External HardDrive **$439**

85MB Turbo External	439
170 MB Turbo External	539
212 MB Turbo External*	649
425 MB Turbo External*	1,379
520 MB Turbo External*	1,449
1 GB Turbo External*	1,949
Quick SCSI NuBus Card	359

*Quick SCSI will increase the performance of these drives

REMOVABLE MEDIA

$16

Datalife Mini Cartridge—
Starting at. . .

Verbatim

Datalife 3-1/2" Micro disks

09900 2S2D Qty. 10	8.90
87573 2SHD Qty. 10	13.80

Verbatim Brand Optical Disks

3-1/2 Rewritable 512 B/S	45
5-1/4" Rewritable 512 B/S	139
5-1/4" Rewritable 1024 B/S	139

Datalife 8mm/4mm
Computer Grade Data Cartridges

8MM DC 112Meters/367 Feet	12.90
4MM DC 90Meters/295 Feet	16.90
4MM DC 50 Meters/197 Feet	13.90

Datalife Mini Cartridges

DC2000 Formatted w/QIC 40 Format	16
DC2080 Formatted w/QIC 80 Format	19
DC2120 Formatted w/QIC 80 Format	21

PINNACLE MICRO

650MB Optical Drive	2,875
PMO 130	1,559

A Special Message for You

As you review these pages you will see lots of competitive prices. The LLB Company offers more—quality products, service, and availability—all backed by knowledgeable sales associates.

We constantly monitor the market, follow up on latest technologies and product developments to bring you the new products at competitive prices that you have come to expect from the LLB Company.

As we expand our product line, we never fail to remember that we exist because of the loyalty of our clients. We hope to continue to earn your trust by doing what we are good at—delivering to you, on time, what you need at a competitive price.

— Almas Kabani, President

SCANNERS

$889 ScanMaker II

Microtek

ScanMaker II Color	889
Scan Maker IIXE Color	1,179

$879

UMAX®

ScanOffice 879
UMAX OA-1 600 dpi (interpolated to 1200 dpi), 256 grayscale scanner. The total scanning solution for the office.

UC840 1,369
The UMAX UC840 captures 16.8 million colors with a variable scanning resolution from one to 800 dots per inch. The UC840 merges award-winning technology with state-of-the art craftsmanship, presenting crisp and clear images.

COMPARE OUR SHIPPING PRICES

AIRBORNE EXPRESS OVER NIGHT $6 AND UP • UPS GROUND $5 AND UP

Orders received before 7:30 PM Eastern time weekdays ship the same day. • We export to most countries in the world. 2-3 days delivery to most countries. • Prices subject to change. Quantity pricing for dealers. • All returns require approval and are subject to a restocking fee.

American Express, Visa, MasterCard, & Discover Cards gladly accepted.

Your card is not charged until the order is shipped.

FAX YOUR ORDER 24 HOURS A DAY (206) 454-7302

THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258

1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time

GET IT TOMORROW!

MASS Microsystems

DiamondDrive™ External Hard Drives

Diamond Drive high performance hard drives give you the ultimate high capacity storage solutions at an affordable price.

120 MB	479
210 MB	629
510 MB	1,359
1000 MB	2,289
1800 MB	2,709

HitchHiker Hard Drive **$739**

$779 HitchHiker for the PowerBook

HitchHiker™ Ultra-Compact Hard Drives

Pocket size external enclosure, platinum color. Weighs less than 10 ounces.

80 MB	599
120 MB	739

HitchHiker Drives for the PowerBook

80 MB	629
120 MB	779

DataPak External SyQuest Drives

44 MB	509
88 MB (R/W 44 MB)	678

DataPak External Magneto-Optical Drives

128 MB	1,429
650 MB	3,059

DataPak CD-ROM Drive

Zero-footprint enclosure, system cable, external active terminator, Audio CD software, CD Caddy.

CD ROM - MultiSession	699

FWB, INC.

FWB PocketHammer 100 **$705**

PocketHammer 100	705
PocketHammer 240	1,139
hammer240is	899
hammerDisk130 Optical	1,579
hammerDisk44	719
hamnmerDisk88	839
hammerPB120	789

SyQuest 44MB Cartridge **$63**

MORE REMOVABLE MEDIA

SyQuest 44MB Cartridge	63
SyQuest 88MB Cartridge	99
Optical Cart/Verbatim (Single) 256MB	95
Optical Cart/Verbatim (Single) 128MB	45
Optical Cart/Komag (Single) 128MB	45
Bernoulli 40MB Cartridge (3 Pack)	270
Bernoulli 90MB Cartridge (3 Pack)	435
Floptical Disc 21 MB	24

ASANTÉ

Maccon + IIeThink/Thin (64)	169
Maccon + Thick/10Base T (64k)	169
Maccon + Thick/Thin/10Base T (64k)	239
Maccon + 30Ie Thick/Thin (64k)	169
Maccon + Thick/Thin/10Base T (64k)	249
Maccon + IIsi Thick/10Base T (64k)	250
Maccon + IIsi Thick/Thin/10 T w/FPU	299
Maccon + LC En 10LC to 10Base T	169
Maccon + LC/LCII Thin w/FPU	289
Maccon + LC 10Base T w/FPU	169
Maccon SE Thick/10Base T (32k)	169
IIsi/SE/SE30 Frien Net/10Base T (16k)	239
IIsi/SE30 Thick/Thin w/FPU (16k)	169
IIsi/SE30 Thick/10Base T (16k)	179
10T Hub w/12 10T Thick/Thin/10 T	499
Hub 1012 & View/Mac 2.0	1,349
10Base T Hub w/8 Thin Port	258
SCSI Ethernet Thick/Thin/10Base T	290
SCSI Ethernet for PB, 10Base T	290
SCSI Ethernet 10 T (w/SCSI Cable)	259
SCSI Enet/PB Thick/Thin/10 T w/Cable	359
MAU 10Base T Media Attachmnent	89
Friendly Net Adaptor - 10Base T	89
Friendly Net Adaptor - Thin	89
Friendly Net Adatper - Thick	89
Asante Print	349
Asante Print Thick/Thin	359

ACCELERATORS

New Life Classic (16MHz)	569
Quadra Overdrive for Quadra 900	239
Novy Quick 30 Mac Plus (25MHz)	525
Novy Quick 30 Mac SE (25MHz)	525

DAYSTAR DIGITAL

ComboCache IIsi	209
ComboCache IIsi w/FPU	299
DualPort IIsi w/20MHz FPU	169
Equalizer LC	169
Equalizer LC w/FPU	239
RAM Power Card	429

DAYSTAR DIGITAL

Universal PowerCache

The PowerCache is an award winning design that gives you affordable 68030 performance and the best in compatibility. Just plug it in and go… no downtime and it works with everything.

33MHz	389
33MHz w/FPU	479
40MHz	559
40MHz w/FPU	649
50MHz	739
50MHz w/FPU	869
Adaptor (All Mac LC and II's, PDS)	41
Adaptor (All Mac SEs and Classics)	85

NEW! Turbo 040 Accelerators

Get the maximum in 68040 acceleration with all the compatibility of the PowerCache. The effective way to increase your productivity up to four times as fast! Optional 128k cache boosts performance another 4-50%.

25 MHz Turbo 040	1,129
33MHz Turbo 040	1,389
FastCache Turbo 25	259
FastCache Turbo 33	345
FastCache IIsi	279
FastCache IIsi w/FPU	349
FastCache IIci	205
FastCache Quadra 700/900	269
FastCache Quadra 700/900/950	409

DAYSTAR DIGITAL

THE LLB COMPANY

300 - 120TH Ave. NE • Bldg 1, Suite 120 • Bellevue, WA 98005 • (206) 454-7258

1-800-848-8967

7:00 A.M. to 6:00 P.M. M-F • 9:00 A.M. to 4:00 P.M. Sat. • Pacific Standard Time

TECHWORKS™

TechWorks offers an extensive line-up of Macintosh performance enhancement products. Each product, like a great work of art, is built to stand the test of time. See your Mac and your favorite software perform its best. Invest in TechWorks performance enhancements.

Macintosh Accelerators

Put your Mac in high gear with TechWorks Accelerator cards. Available in 25MHz, 33MHz and 40MHz speeds.

Memory & Video RAM

Upgrade your Mac to the max with TechWorks Memory and VRAM kits. More color power for your LC, faster color for your Quadra!

Cache Cards & FPUs

Satisfy your need for speed with TechWorks Cache Cards and FPUs.

PowerBook & Duo Memory

FREE

Connectix PowerBook Utilities with any TechWorks PowerRAM Memory Purchase. A $129 value.

Outrageous Support!

The best in the business! No question about it!

- *Lifetime warranty*
- *30-day Money back guarantee*
- *Toll-free support*
- *24-hour Replacement*
- *Get the picture?*

Performance Prooducts

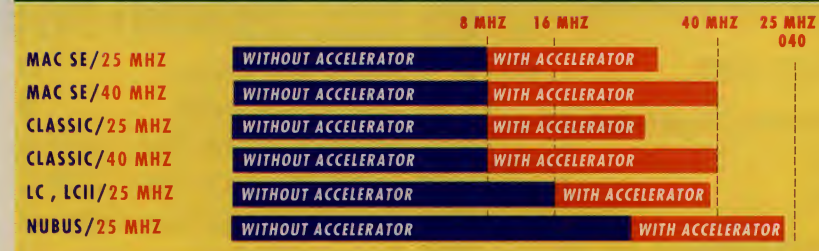
Mac Model	Memory Modules										Accelerators		
	1MB	2MB	3MB	4MB	6MB	8MB	10MB	12MB	16MB	20MB	25MHz	33MHz	40MHz
Macintosh Plus	•												
Macintosh SE	•										•		•
Macintosh SE/30	•			•									
Macintosh II	•			•							•	•	
Macintosh IIx	•			•							•	•	
Macintosh IIcx	•			•							•	•	
Macintosh IIci	•	•		•		•			•		•	•	
Mac Classic	•		•								•		•
Mac Classic II	•	•		•									
Mac LC, LC II	•	•		•							•		
Macintosh IIsi	•	•		•		•			•		•	•	
Macintosh IIfx	•			•		•			•		•	•	
LaserWriter IINTX	•												
TI MicroLaser	•												
HP LaserJet	•	•		•									
Quadra 700	•			•									
Quadra 900, 950	•	•		•		•			•				
PowerBook 100		•		•	•								
140/145/170		•		•	•								
160/180		•		•	•	•	•						
Duo Series		•		•	•	•		•		•			

FREE Connectix CPU with PowerRAM Purchase

Cards

Macintosh LC	512K VRAM • LC FPU
Macintosh IIsi	Adapter Card • Adapter Card with FPU
Quadra 700/900/950	256K VRAM
Macintosh IIci/IIsi	Cache Card

TechWorks Accelerator Speeds



Corporate PO's accepted, all major credit cards honored and volume discounts are available. Fax orders: 512-794-8520

TechWorks; 4030 Braker Lane West, Suite 350; Austin, TX 78759

Business Line: 512-794-8533; Technical support: 800-933-6113

TechWorks is a trademark belonging to Technology Works, Inc.

All other trademarks mentioned belong to their respective owners.

CALL FOR FREE GUIDE

800-765-9864

MarketCenter

THE SOURCE FOR NEW PRODUCTS, SERVICES, AND INFORMATION IN THE MACINTOSH MARKET

Hardware/Boards

INDEX

93 Hardware
- Boards
- General
- Computer Systems
- Networking
- Peripherals
- Used Equipment

107 Software
- Bar Coding
- Business Management
- Desktop Publishing
- Education
- Finance
- General
- Graphics
- Multimedia
- Networking

108 Special Services
- General
- Graphics
- Programming/Consulting
- Rental/Leasing
- Repair/Recovery Services
- Toner Recharging
- Training

108 Accessories

109 CD Rom

INFO. 800-825-4ADS

Ziff-Davis Publishing Company
MacWeek MarketCenter, 3rd Floor
One Park Avenue
New York, NY 10016

Paul Stafford
Vice President, Central Advertising

Paul A. Fusco
Director of Sales

Southwest – AZ, CA (213, 310, 619, 714, 805, 818, 909), CO, NM, UT
Juan Cail (212) 503-5145
Account Representative
Chris Thomas (212) 503-5131
Account Manager

East Coast – CT, DC, DE, FL, GA, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, VA, VT, WV
Manny Fuentes (212) 503-5865
Account Representative
Tom Koletas (212) 503-5136
Account Manager

Northwest – AK, CA (209, 408, 415, 510, 707, 916), HI, ID, MT, ND, NV, OR, WA, WY
Tom Lee (212) 503-5327
Account Representative

Midwest – AL, AR, IA, IL, IN, KS, KY, LA, MI, MN, MO, MS, NE, OH, OK, SD, TN, TX, WI, and Foreign
Jo Zottarelli (212) 503-5122
Account Representative

FPU/PMMU

Centris 610 FPU Upgrade $375
Mac LC, LCII, Classic II Math Card w/882
16MHz.$59 20MHz.$69 25MHz.$79 50MHz.$129
Mac IIsi Dual Slot Card w/882 ..... $119
68882 FPU Chip 16MHz..$49 20MHz...$59
25MHz.$69 33MHz.$119 40MHz.$139 50MHz.$149
68851 PMMU for Mac II (MODE32 free) ... $69

SONNET TECHNOLOGIES, INC.
18004 Sky Park Circle 260 Irvine, CA 92714
714-261-2800 Fax: 714-261-2461
1-800-945-3668

SIMMS low as **$28.95** | **MacClassic $29**

1MB/4MB FX SIMMS	CALL
2MB/4MB SIMMS	CALL
QUADRA/LC VRAM	CALL
IIci/IIsi Cache Card	$128/$138
Power RAM 2/4/6 MB	CALL
Mac LC/Classic FPU	$64

WE BUY 512K, 256K SIMMS

1-800/541-7126
Lifetime Warranty VS/MC no surcharge
Corp., Gov. & Univ. PO's accepted FAX 512-219-1132
Diamond Computer Resources Inc.
13377 Pond Springs Rd. STE. 105, Austin, TX 78729 512-219-1222

ACCELERATE!
Novy 68030 accelerators
For SE, CLASSIC, PLUS, & 512KE
All include FPU socket
All expandable to 16MB

	Novy ImagePro * SE	Novy ImagePro * Classic/ Plus/512KE	Novy Quik30 SE/Plus/ 512KE	Novy Quik30 Classic
16MHz	459	539	339	419
25MHz	539	629	389	459
33MHz	669	749	499	579
40MHz	709	799		
50MHz	749	839		

* Includes external video output

Imagine! Turn your Mac into a 50MHz, Quadra-level machine, with 14" mono. monitor, for as little as $998!

14" B&W Monitor for ImagePro.....$249
Brainstorm Accelerator For PLUS & SE
Performance "comparable to the Mac II and LC" (MacWeek)
MAC PLUS: $189 MAC SE: Call
Harris Labs Performer For MAC SE & CLASSIC
Performer1 $169 Performer2 $199

STATE OF THE ARTS
Phone: 800 866-6488 • Fax: 617 247-6783
56B Gainsborough Street • Box 50 • Boston, MA 02115

THE Chip MERCHANT
How Can Anyone Afford Not To Compare Our PRICES?

MACINTOSH PRODUCTS

1 x 8-80 Simm	$29.50
2 x 8-70 Simm	$58.00
4 x 8-70 Simm	$125.00
8 x 8-70 Simm	$275.00
16 x 8-70 Simm	$499.00
8 x 8-70 Q700	$285.00
16 x 8-70 Q700	$525.00
4 x 8-80 w/PAL	$125.00
1 x 8 FX	$29.50
4 x 8 FX	$110.00
16 x 8 FX	$550.00

PRINTER MEMORY

HP LASERJET		
2p/3's	2MB/4MB	$79/$135
2/2D's	2MB/4MB	$69/$119
PANASONIC		
4410, 4420	2MB/4MB	$86/$139
OKILASER		
400	1MB/2MB	$52/$83
TI MICROLASER		
1 MB		$29.00

POWERBOOKS MEMORY

PB 100	2MB	$70.00
	6MB	$239.00
PB 140, 145, 170	2MB	$70.00
	6MB	$199.00
PB 160,180	4MB	$219.00
	6MB	$299.00
	8MB	$330.00
	10MB	$420.00
DUO 210, 230	4MB	$175.00
	8MB	$289.00

MAC 32 BIT SIMMS
(LC III, CENTRIS, QUADRA 800)

1 x 32 (4MB Simm)	$120.00
2 x 32 (8MB Simm)	$229.00
4 x 32 (16MB Simm)	$499.00

MAC VIDEO

Quadra	256K-80 VRAM	$27.00
LC/LCII	256K-100 VRAM	$18.00
DUO	512K-80 VRAM	$40.00

ALSO AVAILABLE
PC SIMMS, SIPPS, CO-PROCESSORS
EPSON and Compatible Boards

LIFETIME WARRANTY on most products. Other chips available. Prices reflect 3% cash discount. U.S. Government and University PO's accepted. Fax # 619-268-0874. We buy 512K, 256K (2-chip), 1 MB, & 4MB SIMMS. Call Heidi ext. 7.
ORDERS (800) 426-6375 INFORMATION (619) 268-4774
9541 Ridgehaven Ct., San Diego, CA 92123
Prices subject to change without notice.

MEMORY UPGRADE DEPOT
- 1 Meg Upgrade for Mac SE, SE30, Plus, LC, II, Classic, Classic II, IIx, IIci, IIsi, IIcx, IIfx, Quadra 700 and 900, LaserWriter II NTX, TI Microlaser & HP Laserjet.
- 2 Meg Upgrade for Mac IIci, Classic II, LC, IISi & HP Laserjet
- 4 Meg Upgrade for Mac SE30, II, IIx, IIcx, IIci, Clasic II, LC, IIsi, IIfx, HP Laserjet, LaserWriter II NTX, Quadra 700 & 900
- 6 Meg Upgrade for Powerbook 140 & 170
- 16 Meg Upgrade for Quadra 700 & 900
- We offer OEM pricing
- Government & University purchase orders welcome
- World wide orders accepted

DELTA LU RESEARCH LABS
26802 Vista Terrace Dr. El Toro, CA 92630
1-(800) 6DELTA-LU (714) 588-6395

Upgrades for your Mac
Mac2VGA cable $20
ADB Extended Keyboard.....$97
Relisys 14" color monitor.....$329

68030s FROM ONLY $299!
Choose between the 25MHz '030 MicroMac MultiSpeed for only *$299* or the 32MHz '030 MicroMac MultiSpeed for only *$398* to increase the speed of your Plus or SE up to *800%*.

MacUpgrade Specialists (800) 266-3622
Fax: 714.362.5428

Who's reading MacWEEK?
Serious Buyers. 95,000 Corporate, government, and academic professionals who buy Macintosh products in volume.

THE ONE BOARD SOLUTION
ACCELERATOR-VIDEO BOARD
Twice as fast as the closest competitor! Works with most large monitors, including Radius.™ The perfect upgrade for compact Macs with (or without) large monitors.
- ▼ Speeds of 16, 25, and 33 MHz
- ▼ Math co-processor included
- ▼ Easy plug-in installation
- ▼ SIMM sockets for extra memory
- ▼ Optional monitors 15" and 19"
- ▼ 30 Day money-back guarantee
- ▼ Engineered by Novy Systems

Combo Board Starts at Just $695
Board/Monitor System Starts at $1295
Free Brochure & information
—Dealer Inquiries Welcomed—
1-800-638-4784
1-904-428-0411
IMAGEPRO
Accelerator-Video Boards & Systems
System Technology Corp. • 1860 Fern Palm Drive
Edgewater, Florida 32141 • Fax (904) 428-0765

SPEED UP YOUR MAC!
NOVY ACCELERATOR BOARD
Dramatically improve the speed and performance of your Mac SE, Plus & KE.
- ▼ Speeds of 16, 25, and 33 MHz
- ▼ Math co-processor included
- ▼ Easy plug-in installation
- ▼ SIMM sockets for extra memory
- ▼ Complete kit and tools
- ▼ 30 Day money-back guarantee
- ▼ Overnight delivery available
- ▼ Engineered by Novy Systems

Prices Start at Just $495
Free Brochure & information
—Dealer Inquiries Welcomed—
1-800-638-4784
1-904-428-0411
QUIK30
Accelerators
System Technology Corp. • 1860 Fern Palm Drive
Edgewater, Florida 32141 • Fax (904) 428-0765

—System Technology Corporation is a division of Novy Systems, Inc.—

MEMORY PLUS

Macintosh Enhancement Products

Price, Performance, Satisfaction Guaranteed

SIMM's

1MX8-100ns.....	$Call
1MX8-80ns.....	$Call
1MX8fx-80ns.....	$Call
2MX8-80ns.....	$Call
4MX8-80ns.....	$Call
4MX8fx-80ns.....	$Call
4MX8-80ns w/Pal.	$Call
8MX8-80ns.....	$Call
16MX8-80ns HP...	$Call
16MX8-80ns LP...	$Call
16MX8fx-80ns.....	$Call
Classic 1M.....	$Call
3M.....	$Call
Mac Portable 3M..	$Call

Due to fluctuations in Memory Prices-call for latest prices

UPGRADES

IIsi 2 Slot Adaptor.....	$49
IIsi 64K Cache Card.....	$139
LC/LCII 16Mhz FPU.....	$59
LC/LCII 20Mhz FPU.....	$69
Classic II 16Mhz FPU...	$59
Classic II 20Mhz FPU...	$69
IIci 64K Cache Card.....	$125
Sonnet Twin Slot LC.....	$309

FPU 's (Chip only)

68882-16Mhz.....	$55
68882-20Mhz.....	$55
68882-25Mhz.....	$89
68882-33Mhz.....	$125
68882-50Mhz.....	$159
PMMU 68851RC-16Mhz	$79

ACCELERATORS

NOVY QUIK 30

Plus 25Mhz, w/FPU.....	$499
SE 25Mhz, w/FPU.....	$450

NOVY IMAGEPRO

Plus 25Mhz, w/FPU.....	$825
SE 25Mhz, w/FPU.....	$725

APPLIED ENGINEERING

TransWarp SE, 25Mhz, FPU	$585
TransWarp LC, 25Mhz, FPU	$609
TransWarp 040, 25Mhz, FPU	$1895
Transwarp Classic 25, FPU	$615

NEWER TECHNOLOGY

900 Overdrive.....	$139
700/900 Vari Overdrive...	$299
FX Overdrive II.....	$339

TECHNOLOGY WORKS

Classic 25Mhz, w/FPU...	$439
Classic 40Mhz, w/FPU...	$679
SE 25Mhz, w/FPU.....	$439
SE 40Mhz, w/FPU.....	$679
LC 040, 25Mhz.....	$1099
NuBus 040, 25mhz.....	$1450
NuBus 040, 33Mhz.....	$1750

BRAINSTORM

Plus ,16Mhz.....	$199

VIDEO RAM

LC 512K.....	$49
Quadra 256k 80ns.....	$27
Raster Ops.....	$Call
Radius.....	$Call
Xante.....	$Call

NEW PRODUCTS

Memory In Stock Now!!!

Macintosh Centris, LCIII, Quadra 800, and LaserWriter PRO Series

SYQUEST

External 44MB.....	$409
External 88MB.....	$499
Dual Removable 44/44...	$779
Dual Removable 88/44...	$879
Dual Removable 88/88...	$949

CARTRIDGES

44MB.....$64
88MB.....$98

Drive packages include: Software, Cable, & Cartridges

PowerBook Alley

PSEUDO STATIC RAM

MODEL	100	140/170	160/180
2M	$80	$80	$95
4M	$175	$152	$199
6M	$239	$215	$279
8M	—	—	$330
10M	—	—	$415

DUO 210/230

4M	$210	8M	$359

Newer Technology Upgradable DUO Modules

4M Base....$220 4M Upgrade....$210 8M Upgrade....$389

MacSac - Slim Carrying Case.....	$29
MacSac - Deluxe Carrying Case.....	$59

FULL CYCLE BATTERY CHARGERS

PowerBook 100.....	$115
PowerBook 140/145/160/170/180.....	$80
Automobile Power Adaptor.....	$75
Battery for 140/145/160/170/180	$60
Auxiliary Power Pack (4 X Capacity)...	$159

ALL PB MEMORY SHIPS WITH TOOLS & INSTRUCTIONS

QUANTUM HARD DRIVES

GO/120MB.....	$479

PSI Internal Fax/Modems

PowerModem I.....	$129
PowerModem II.....	$229
PowerModem III.....	$329
PowerModem IV.....	$379
CONNECTIX "CPU" Utilities	$40

CABLES

HDI30 to 50 Pin SCSI.....	$49
HDI30 to 25 Pin System.....	$49

MacSac Carrying Cases

LC, IIsi CPU

w/ Extended Keyboard...	$63

Classic, SE, Plus

w/ Extended Keyboard...	$66
w/Standard Keyboard....	$64
RGB Monitor12", 13".....	$60
StyleWriter.....	$45

SPECIALS

Introductory Offer

LogiCache

68030, 50Mhz Accelerator
IIci, IIsi*, SE30*

*Adaptor $59 **$649**

LASER RAM

TI Micro 1mb.....	$39
TI Turbo 4mb.....	$263
HP LASERJET IV 4mb.....	$159
NEC ModelsII/90/290 2mb.....	$143
NEC Model 95 2mb.....	$125
LaserWriter IIntr 2mb.....	$65
LaserWriter LS 512kb.....	$25
LaserWriter Pro 600/630.....	$Call

CALL FOR OTHER PRINTERS AND SIZES

Terms & Conditions

MC/VISA/DISCOVER/AMEX
NO CREDIT CARD SURCHARGE
PRICES SUBJECT TO CHANGE
COD PRICES LISTED
APPROVED GOVERNMENT, UNIVERSITY, CORPORATE P.O.'S ACCEPTED
PRODUCT NAMES IN THIS ADVERTISMENT ARE ™ OR ® OF THEIR RESPECTIVE COMPANIES

CALL FOR OTHER CONFIGURATIONS

MEMORY PLUS

(800) 388-7587

43 Hopkinton Road, Westboro, MA 01581
Local - International (508) 366-2240
Fax (508) 366-7344

PERIPHERAL

SIMMs
PowerBook Memory
Quadra Memory
Video RAM
Cache Cards
Accelerators

68030 Accelerator and Monitor Combo

"ImagePro" SE, Classic, Plus, 512Ke.
- Works with your monitor or ours
- 16, 25, and 33 Mhz speeds available
- System 7/Virtual compatible.
- Add up to 16 Megabytes of RAM.
- Includes 68882 Math CoProcessor.
- Optional Display- 15, 19, or 24 inch.

SIMMs

1 Megabyte 70 ns	CALL
1 Megabyte 80 ns	CALL
1 Megabyte 100 ns	CALL
2 Megabyte 80 ns	CALL
4 Megabyte 80 ns	CALL
8 Megabyte 70 ns	CALL
16 Megabyte 70 ns	CALL

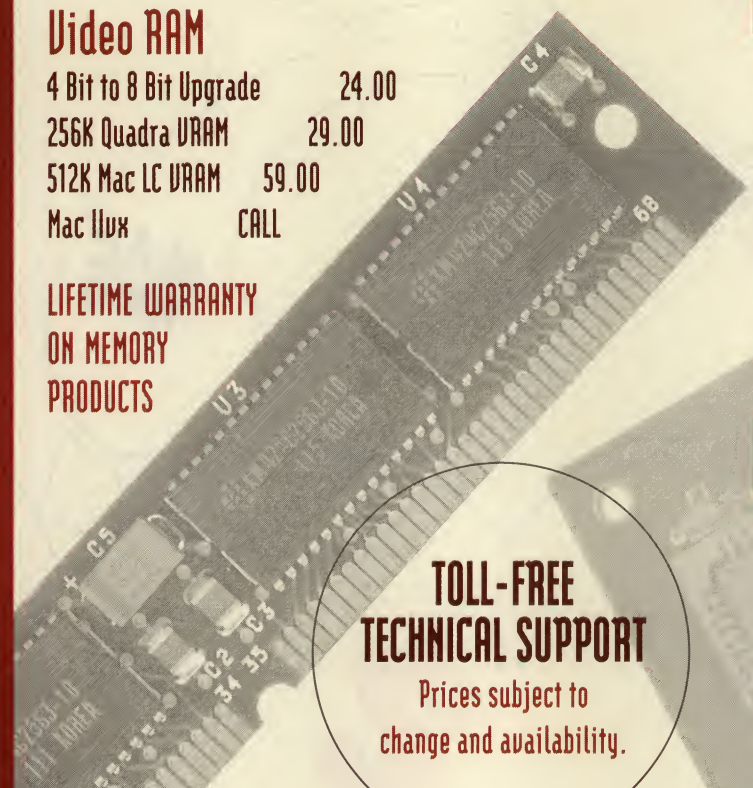
Video RAM

4 Bit to 8 Bit Upgrade	24.00
256K Quadra VRAM	29.00
512K Mac LC VRAM	59.00
Mac IIvx	CALL

LIFETIME WARRANTY ON MEMORY PRODUCTS

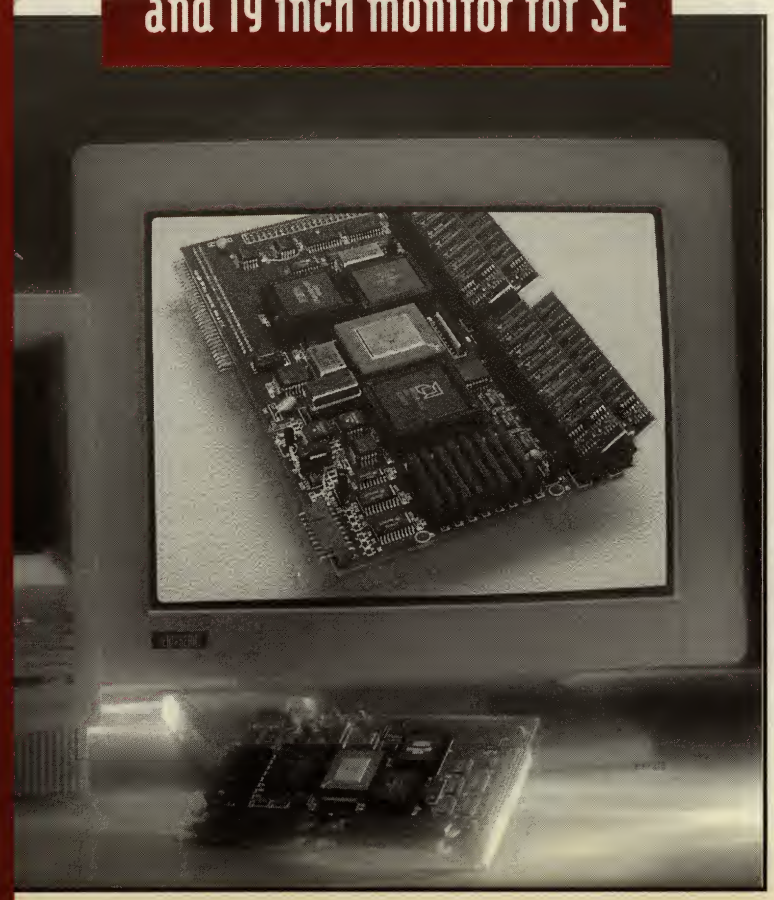
ORDER BY 6:30 PM CST FOR SAME DAY SHIPPING*
*some restrictions apply

OVERNIGHT DELIVERY from $8.00



TOLL-FREE TECHNICAL SUPPORT
Prices subject to change and availability.

ImagePro 25 Mhz accelerator and 19 inch monitor for SE



800/256-6581

Quadra Memory

256K VRAM for Quadra 700/900	$29.00
256K VRAM for Quadra 950	35.00
16 MB SIMMs for Quadra 700	CALL
16 MB SIMMs for Quadra 900/950	CALL

PowerBook Memory

PowerBook 100	
2 Megabyte Module	$ 89.00
4 Megabyte Module	189.00
6 Megabyte Module	289.00
PowerBook 140/170	
2 Megabyte Module	$ 89.00
4 Megabyte Module	159.00
6 Megabyte Module	249.00
PowerBook 160/180	
2,4,6,8, and 10 Meg Modules	

Call for latest prices.

CALL FOR POWERBOOK DUO 210 AND 230 MEMORY!

68882 FPUs

20 Mhz for Macintosh LC	$ 69.00
33 Mhz for Macintosh LC	149.00
50 Mhz for Macintosh LC	199.00
20 Mhz w/2 slots for Mac IIsi	119.00
20 Mhz for Mac Classic II	69.00
33 Mhz for Mac Classic II	149.00
50 Mhz for Mac Classic II	199.00

Cache Cards, Etc.

II si 64K Cache Card	$ 139.00
II ci 64K Cache Card	129.00
II si 2-slot Card and 68882	119.00

FPUs (chip only)

68882 16 Mhz	$ 55.00
68882 20 Mhz	59.00
68882 25 Mhz	109.00
68882 33 Mhz	135.00
68882 50 Mhz	175.00
68881 16 Mhz	45.00
68881 20 Mhz	49.00

Miscellaneous

T.I. MicroLaser 1 MB	$ 39.00
Virtual 3.0	129.00
with accelerator	99.00
Mac Classic 1 MB Bd	55.00
Mac Classic 3 MB Bd	119.00
68851 16 Mhz PMMU	79.00
Mac Portable RAM	CALL
NeXT Memory	CALL

68030 *SUPER-FAST* Accelerators

"Quik30" for Mac SE, Plus, 512Ke
- Speeds of up to 33MHz
- System 7/Virtual compatible
- Add up to 16 Megabytes of RAM
- Includes 68882 Math CoProcessor

only $529.00 for 25MHz version

PERIPHERAL OUTLET

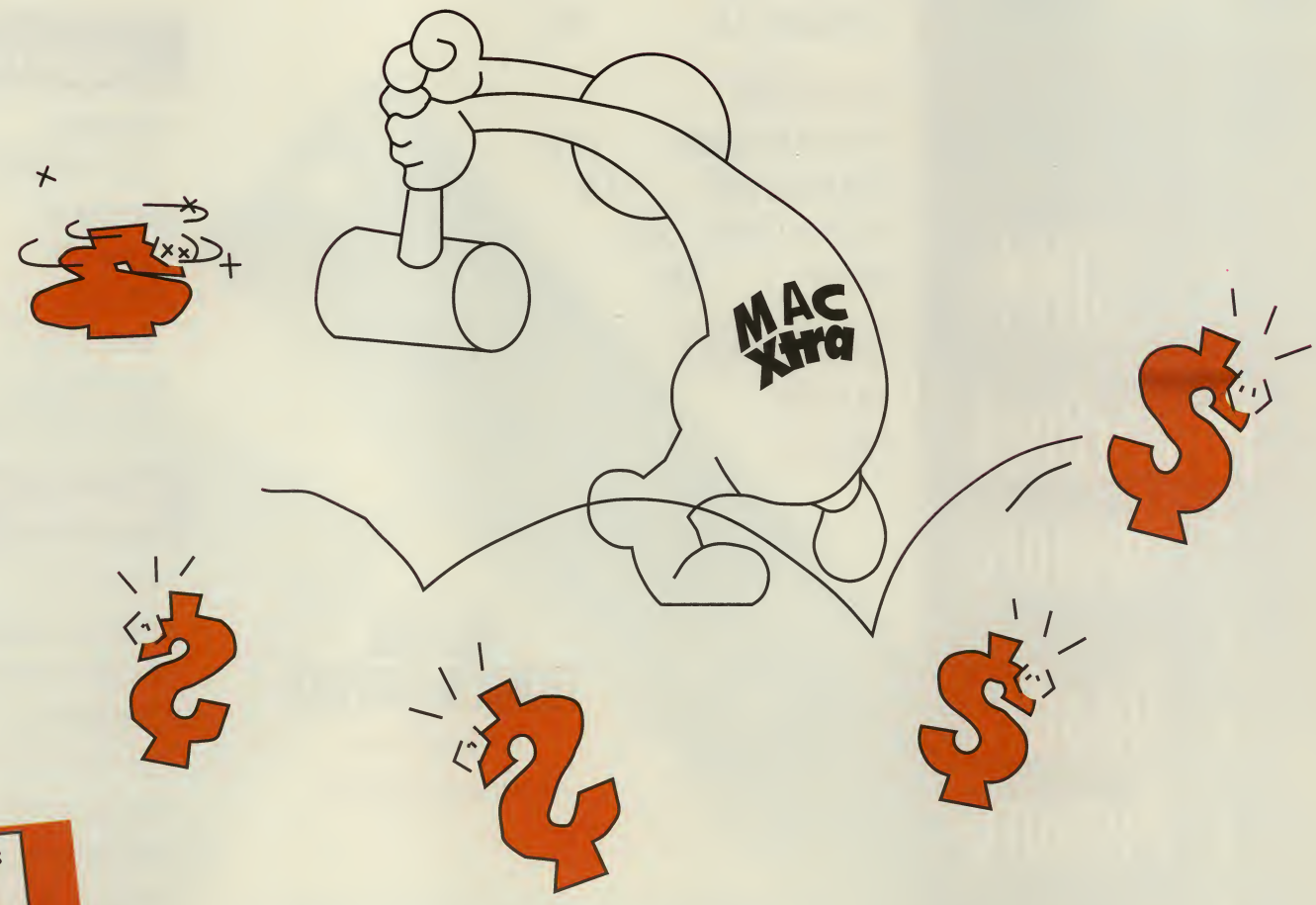
327 East 14th, PO Box 2329 Ada, Oklahoma 74820
International ☎ 405/332-6581 FAX ✆ 405/436-2245

MAC Xtra is STAMPING OUT HIGH COSTS!

(Formerly MAC EXPRESS)

MEMORY UPGRADES

1x8x80	30
1x8x70	32
1x8x100	28.50
2x8x80	59.50
2x8x70	61.50
4x8x80	115
4x8x70	117
4x8x80 II/II	125
4x8x70 II/IIx	127
8x8x80	279
16x8x80 (High profile)	470
16x8x70 (Low profile)	555
1x8x80fx	33
1x8x70fx	35
4x8x80fx	117
4x8x70fx	119
8x8x80fx	269
16x8x80fx	495



Classic Expansion Cards

1MB	47
3MB	112
512K VRAM	49
256K VRAM	27
1x9x70	39.75
4x9x70	135
TI Microlaser Upgrade	40
Tool Kit (Simms Inst.Kit)	7
Tool Kit (PowerBook)	6.50

POWERBOOK MEMORY

PB100/140/170-2MB	80
PB100/4MB	189
PB100-6MB	241
PB140/170-4MB	169
PB140/170-6MB	210
PB160/180-4MB	204
PB160/180-6MB	290
PB160/180-8MB	369
PB160/180-10MB	439
PBDUO 210/230-4MB	215
PBDUO210/230-8MB	399

SYQUEST CARTRIDGES

SYQUEST 44MB Cartridge	63
SYQUEST 88MB Cartridge	99

SHIPPING

Overnight Delivery:	$7
UPS:	$6

International Orders
Phone: (206) 455-0786
Fax: (206) 455-3448
24 Hours a Day

CALL: 1-800-553-4230

We accept MasterCard, VISA & Discover
Prices subject to change • Returns subject to approval and restocking fee

MAC Xtra
1075 Bellevue Way N.E., Suite 114 Bellevue, WA 98004
Phone: (206) 455-0786 Fax: (206) 455-3448

To enhance our identity and avoid confusion, MacEXPRESS is now MacXtra. We will honor all warranties given under our previous name.

MEMORY DIRECT

"Don't pay retail...buy direct"

SYQUEST CARTRIDGES

44 MEG $64

88 MEG $105

MACINTOSH

1x8 - 100NS	call
1x8 - 80NS	call
1x8 - 70NS	call
2x8 - 80NS	call
2x8 - 70NS	call
4x8 - 80NS	call
4x8 - 70NS	call
4x8 - 80 FX	call
4x8 - 80 II/IIx	call
8x8 - 80NS	call

QUADRA

★ 4 Meg Sims	call
★ 8 Meg Sims	call
★ 16 Meg Sims	call
★ 512K VRam Kit	call

POWERBOOK / DUO

new **Memory upgrades for new** POWERBOOK 160 / 180 & DUO 210 / 230

4 • 6 • 8 • 10 • MEGS–CALL

LASERPRINTER MEMORY

APPLE IINTX	
4 Meg Kit !	call
HP Laser printers -All	call
QMS PS-410, 815, 825	
2 meg	call
4 meg	call
6 meg	call
NEC Silentwriter 95	
2 meg	call
TI Microlasers 1 Meg	call

★ **We Stock for most lasers** ★

MAXIMUM MEMORY SPECIAL

! 16 MEG SIMMS !
CALL

MEMORY!

HARD DRIVES!

CONNER

	Internal	External
• 42 Meg	**$209**	**$279**
• 85 Meg	**$279**	**$345**
• 120 Meg	**$369**	**$429**
• 170 Meg	**$409**	**$474**
• 212 Meg	**$619**	**$699**

FUJITSU

• Fujitsu 425 Meg	**$975**	**$1039**
• Fujitsu 520 Meg	**$1075**	**$1175**
• Fujitsu 1.2 Gig	**$1700**	**$1775**
• Fujitsu 2.06 Gig	**$2799**	**$2879**

• **Syquest Removable W/Ctrge** 44 Meg **$414** 88 Meg **$559**

DAYSTAR DIGITAL

		w/ math chip
Power Cache 33	$545	$660
Power Cache 40	$745	$909
Power Cache 50	$1069	$1279
Fast Cache si	$295	$362
Fast Cache ci	$259	—

NewLife™ For Old Macs

			W/ Chip
NewLife 1	128K, 512K, 512Ke	**$225**	
NewLife 16 Mhz *Accelerator*		**$479**	**$569**
NewLife *25 Mhz Accelerator*	Mac plus	**$649**	**$799**
NewLife *16 Mhz Accelerator*	SE	**$399**	**$469**
NewLife *16 Mhz Accelerator*	Classic	**$509**	**$569**

ACCELERATORS!

NETWORK ASANTÉ

ETHERNET ADAPTERS

MAC CON+	**$209**
MAC+ II,E & ET 64K	**$169**
MAC II, Si - 64K	**$209**
MAC +LC II	**$209**
MAC 3 SE	**$209**
EN/SC	**$319**

Friendly net adapters
all types **$99**

10 T–12 PORT HUB $499
10 T– 8 PORT HUB $249

SUPERMAC

VIDEO CARDS

Spectrum/8 (IIsi)	**$499**		
Spectrum/8•24	**$575**	PDQ	**$849**
Spectrum/24	**$999**	Series III	**$825**
Spectrum/24 PDQ plus	**$1644**		
Monochrome card	**$349**		

DISPLAYS

SUPERMATCH

17" Multi Mode Color	**$1079**
17" SuperMatch Color	**$1075**
20" Supermatch	**$1489**
20" D. Trin.	**$2449**
20" Trin.	**$2474**
21" 2 page	**$2725**

PLATINUM

20"	**$899**
21" 2 page	**$999**

RasterOps

VIDEO CARDS

RasterOps 24XLi	**$2059**
RasterOps 24 paintboard	**$1649**
RasterOps paintboard Li	**$849**
RasterOps 24 sx	**$675**
RasterOps colorboard 264 se 30	**$2059**
RasterOps 8XLi	**$999**
RasterOps 8XL	**$499**

MULTIMEDIA PRODUCTS

RasterOps 24xXLTV	**$2519**
Pro Video PAL	**$1609**
RasterOps Video Expander	**$440**
RasterOps TV Tuner	**$315**
ImagePak Still Compression	**$315**

DISPLAYS

21" Color	**$2999**
20" Color Multimode	**$2075**
20" Color Multiscan Trintron	**$2925**
16" Color	**$1249**

VIDEO!

WE WILL NOT BE UNDERSOLD!

800-486-2447

Fax (714) 847-5043

7911 Professional Circle • Huntington Beach, CA 92648

Installation instructions & tools available for most products.
Prices subject to change.

Lifetime Warranty!
Highest Quality
Same Day Shipping

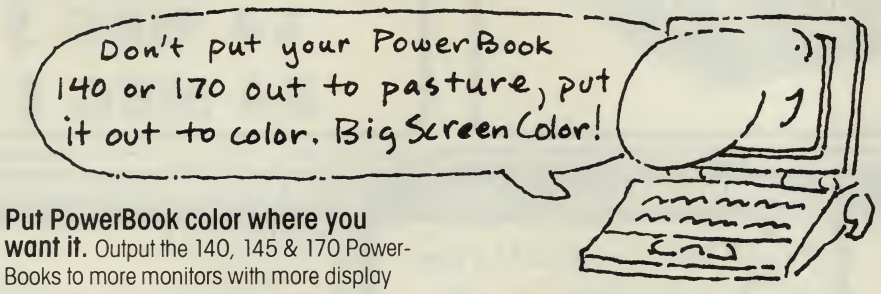
MasterCard VISA

7AM to 7PM
MON.-FRI.
9AM to 3PM
SAT.

Corporate PO's
Government PO's
Educational PO's

American Express Card DISCOVER

Boards



Put PowerBook color where you want it. Output the 140, 145 & 170 PowerBooks to more monitors with more display choices than even their higher priced new siblings. Provides 6 megs of RAM on board for total of 8 megs system RAM.

BookRAM. Pick from 2, 4 or 6 meg RAM cards for PowerBooks. One card fits all. Up to 10 Megs for the PowerBook 160 and 180.

Call now to know what's good for you!

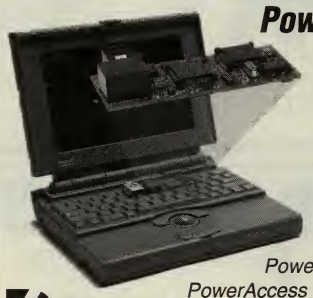
Ford Centre, Suite 1180
420 North Fifth St.
Minneapolis, MN 55401
(612) 371-0061
(800) 950-CARE (2273)
Fax: (612) 371-9342
AppleLink: ComCare

Computer Care

Dealer Inquiries Welcome. Visa, MC, AMEX, Discover Accepted

Communications/Networking

PowerBook Fax and Data Modem



Simple	Powerful
• Simple to install	• 14,400 bps fax & data (V.32bis)
• Simple to learn	• 57,600 bps throughput (V.42bis)
• Simple to use	• Does not use CPU resources

• 24-hour BBS Customer Support
• 5-year Warranty
• 30-day Satisfaction Guarantee

Dealer inquiries welcome

PowerAccess 144/144 **$269.00** + *Get up to $30.00 back for dealer Installation*

PowerAccess 96/96 **$259.00**

Dtronix
3140 De La Cruz Blvd., Santa Clara, CA 95054
Intl. (408) 982-9667 FAX: (408) 982-9640

800-995-1711

OEM, Qualified as D.S.B. Corp., Govt. and University P.O.s accepted with approved credit.

Leave your mark on volume buyers through
MacWEEK's MarketCenter.

Computer Systems

Close-Out CPU'S

Mac S·A·L·E INTERNATIONAL

Reduced Lasers

LASER BLOW-OUT

QMS PS-410 - $799.00
(* with purchase of toner)
Like NEW, 300 dpi PostScript, Mac + IBM autoswitch, Factory Sealed/wrnty, (List - $1,995.00)

- FINAL PRICE REDUCTIONS! USED EQUIPMENT -

QMS ColorScript 100 - $1,599.00
(List $9,995.00) 300 dpi Color Laser/PostScript

Classic II 4/40 - $799.00
Mac SE 1/20 - $499.00
Stylewriter - $199.00

Call For Other Specials

Apple Personal Laserwriter LS - $599.00
Apple Laserwriter IINT - $995.00
Apple Laserwriter IINTX - $1,195.00
Radius Pivot Color/Mono - $599.00/375.00
Radius TPD Mono - $599.00
Mac II 2/0 - $699.00
Mac IIcx 2/0 - $949.00

New Equipment Specials:
Classic 2/40 - $775.00
Classic II 4/40 - $949.00
Stylewriter - $249.00
Apple IIci Cache Cards - $35.00
Radius Pivot Color/Mono - $799.00/475.00
PowerBook 170 4/40 w/modem - $2599.00

Mac Parts: (Partial Listing, Call with your needs!)
IIci Logic Board - $1050.00
IIcx Logic Board - $650.00
Mac II Logic Board - $425.00
LW IInt Logic Board - $179.00
LW IIntx Logic Board - $479.00
Power Supplies, Accessories, Etc.

WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT
New and Used Mac's Bought and Sold
PRICES REPRESENT CASH DISCOUNTS!
1-800-729-7031
Entire Mac Line Latest Models In Stock
Prices represent "2% Cash Discount!" - off Full Price.
LIMITED QUANTITIES
Returns at discretion of Mgmt./15% Restocking fee.

Macs for Less! Guaranteed!
All CPU's! All New!
Buy from us,
or you'll pay too Much!
1-(800) 460-0085

95,000 MVB's Means We're a Sure Shot in March

Call Your MacWEEK Representative Today!
1-800-825-4237
MacWEEK MarketCenter

BIG MAC Computers, Inc.
Division of WCN

In Business Since 1987. All products 1 Yr. Warranty

POWER BOOKS	
165C 4/80	3095
165C 8/120	3595
165C 14/232	4095
160 4/40	2195
160 4/80	2430
160 4/160	2775
180 4/80	3795
180 4/120	4150
180 14/230	4895
DUO 210 4/80	2070
DUO 230 4/80	2395
DUO 230 4/160	2795
DUO Dock	1050

MAC IIVX	
4/80	1785
8/200	2250
8/200-CD	2795
QUADRA'S	
950 8/0	4595
950 8/200	4895
950 16/525	5595
950 64/1.2	7395
700 4/0	2225
700 8/200	2595
800 8/230	3795
800 8/500	4350
800 24/500-CD	5376
800 40/1.2	6195
CENTRIS	
650 4/80	2385
650 8/80	2775
650 16/230	3695
650 24/50-CD	5095
610 4/80	1725
610 8/200	2095

LC III , LC II	
LC III 4/80	1299
LC III 8/200	1799
LC II 4/40	840
SI - CLASSIC CLR.	
Si 3/40	899
Si 5/200	1399
Classic Clr.4/80	1399
APPLE MONITOR	
13"/14" Color	450/499
16" Color	1230
APPLE KYBRD.	
Adj. Keyboard	209
Ext. Keyboard	155
Gen. Extended	99
APPLE PRINTER	
Pro 630	2350
Pro 600	1975
IIF/IIG	2120/2590

Select 300	785
Select 310	1025
Style Writer II	349
PRINTERS	
HP Desk Writer	395
HP DW550C	729
HP Laser 4M	1895
Digital P.S.	1095
NewGen	CALL
Brother 10ppm	1395
SCANNERS	
MicroTeck IIXE	1130
UMax 630	1070
HP ScanJet IIC	1250
LOGIC BOARDS	
IIF/IIG	895/1195
IIFX	1695
700/900	1595/1795
950/800	2595
NT/NTX	295/595

DEMO MAC'S	
700 4/0	CALL
900 4/0	3495
IIFX 4/80	2395
IICI 5/80	1850
IICX 4/80	1299
LC 2/40 W/Key	750
SE30 2/40	1350
P.B 140 4/40	1550
P.B 170 4/40	1995
Portable 2.40	750
EXCHANGE YOUR MAC	
700 to 800	2595
CI to 700	1199
900 to 950	2295
P.B. 100 to 140	950
P.B. 140 to 160	1199
P.B. 170 to 180	1995
40MB to 80MB	250
20MB to 40MB	120

10837 Santa Monica Blvd. Los Angeles, CA 90025
Tel: (310) 470-7099 • Fax: (310) 470-8099

Call for APPLE 3rd party products • International Orders. Visa. MC & AmEx Welcome • Next Day Shipping for U.S.A. & International
SuperMAC • Radius • RasterOps • E-Machine • DayStar. . .

FREE GROUND SHIPPING CONTIN. U.S.

MAC PROFESSIONAL

We sell Apple original serial numbers only! One Year Warranty. We only sell new products.
19801 Ventura Blvd., Woodland Hills, CA 91364 No tax outside CA. Dealers & international orders welcome.

(818) 719-0007 We guarantee best pricing. FAX (818) 719-9115

Quadra 950 8 MB	**Call**	Power Book 180 6/80	$3837	Sony 1320	$ 377
Quadra 950 16/520	$6677	Power Book 180 6/120	Call	Sony 1430 Trini	$ 597
Quadra 700 8/120	$3677	Power Book 160 All Models	Call	Sony 1604 Trini	$ 987
Quadra 800	Call	Power Book 145 All Models	Call	Apple 14" Trini	$ 537
MAC II VX 4/80	$2447	Power Book 210 4/80	$2077	NEC 4FG 15"	$ 737
MAC II VX 5/80 W/CD	Call	Power Book 230 4/80	$2377	NEC 5FG 17"	$1337
MAC II VX 8/230	$2877	Duo Dock/Mini	Call	NEC 6FG 21"	$2377
Centris 610 4/80	Call	All Power Book Accessories	Call	E Machine T16 II	$1327
Centris 650 4/80	Call	Style Writer II	$ 337	Complete Product Line of Radius, SuperMAC, Raster Ops and E Machine are In Stock.	
MAC II Ci 8/230	$2447	Apple Color Printer	Call		
MAC II SI 17/170	$1937	Laser Writer Pro 600	1977	UMAX UC 630 600 Dpl	$1087
MAC LC II 4/80	$997	Laser Writer Pro 630	$2387	UMAX UC 840 800 Dpl	$1337
MAC LC III	Call	HP Desk Writer 550 Color	$ 697	UMAX UC 1200 Color	$2877
Color Classic 4/80	Call	HP 4M 6 MB Postscript	$1947	Color One Scanner	Call

FREE DUST COVER WITH EVERY PURCHASE

Computer Systems

SHARP®
Factory Authorized

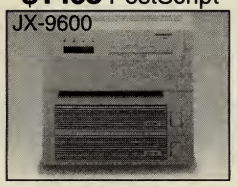
SALES
SERVICE
SUPPORT
NEW & USED

"NO 1 CAN COMPETE WITH US!"

- Exclusive Sharp Service Center for 10 years!
- Nation's Best Service & Prices!
- Dealer Inquiries Welcome
- Lease Options Available

$10,395 w/Software

COMMERCIAL SCANNERS
20-1200 DPI 1yr. warranty

$1495 PostScript


LASER PRINTERS
600 DPI w/RISC and 2yrs of supplies

$945 w/Photoshop

SCANNERS
JX-320, 450, 600 & 610

- Quick Repair Times
- Longer Warranties (up to 3yrs)
- Factory Trained & Authorized
- Complete Satisfaction

VISA MasterCard

(503) 284-2525
(206) 695-8100

METRO
PROFESSIONAL IMAGING SYSTEMS
PORTLAND, OR

Let **MacWEEK MarketCenter** take your product to the decision-making buyers inside business, government, and education. Call your Account Representative today.

ACCESS II 800-662-5606

NEW MACS NOW ON SALE

PowerBook

145	4/40	$1999
145	4/80	$2349
160	4/40	$2299
160	4/80	$2649
160	4/120	$2949
180	4/80	$3849
180	4/120	$4199
165c	4/80	$3299
165c	4/120	$3649

PowerBook Duo

210	4/80	$2149
230	4/80	$2499
230	4/120	$2799
Duo MiniDock		$569
Duo Dock		$999

Quadra

800	8/230	$4099
800	8/500 w/ CD-ROM	$5109
800	8/1000	$5999
950	8MB	$4949
950	8/230	$5349
950	8/500	$5999
950	8/1000	$7149

Apple Printers

StyleWriter II	$339
LW Pro 630	$2499

QMS Printers

860 Hammerhead	$3999
Other Models Available	

Mac CPUs (Available in other configurations)

Classic II 4/80	$1059	IIvx 5/80 w/ CD-ROM	$2159
Color Classic	$1369	IIvx 8/230	$2279
LC II 4/80	$1099	Centris 610 from	$1719
LC III 4/80	$1299	610 8/230	$2329
LC III 4/160	$1449	Centris 650 from	$2499
IIci 5/0	$1849	650 8/230	$3299
IIci 5/230	$2299	650 8/500	$4049
IIvx 4/80	$1759		

Optical Drives
Panasonic 128MB $998

UMAX Scanners
24-bit with PhotoShop

UC840: 800 x 400-dpi	$1299
UC1200s: 1200-dpi	$2999

Ext. Hard Drives
Conner (1-Yr. Warranty)
80MB $309 120MB $379
170MB $399 212MB $519
Fujitsu (5-Yr. Warranty)
520MB $1019 1.2GB $1519

Apple Monitor

14" Trinitron	$549

SuperMac

20" Trinitron	$2599
20" Hitachi	$1499
17T Trinitron	$1159
21" Platinum Mono	$1079
Mono Interface	$349
Spectrum 8/III	$419
Spectrum 24/IV	$839
Spectrum 24PDQ+	$1619
ThunderStorm	$839
VideoSpigot	$399

Optical Drives
Panasonic 128MB $998

WE DEAL EXCLUSIVELY IN MAC SYSTEMS AND PERIPHERALS.
DON'T BUY OR SELL UNTIL YOU TALK TO US.

INTERNATIONAL ORDERS WELCOME
TEL. 603-890-3333 / FAX 603-890-3155
26 KEEWAYDIN DRIVE • SALEM, NH 03079
PRICES & AVAILABILITY SUBJECT TO CHANGE

General

VISA **ProDirect** MasterCard

HEWLETT PACKARD — Great For MACs & Workstations

Capacity	Model		Specifications	Int.	Ext.
1.2 Gb	C2247	3.5"	10.5 MS, 5 yr. War. Fast SCSI-2	$1885	$1945
1.2 Gb	97558	5.25"	13 MS, 5 yr. War. SCSI-2	1655	1755
1.6 Gb	97560	5.25"	13 MS, 5 yr. War. SCSI-2	1989	2089
2.11 Gb	C3009	5.25"	11 MS, 5 yr. War. Fast SCSI-2	2669	2769
2.35 Gb	C3010	5.25"	11 MS, 5 yr. War. Fast SCSI-2	2989	3089
2 Gb DAT	35470	3.5"		N/A	1389
5 Gb DAT	3548	3.5"		N/A	1699

"Mass Storage That Works™"

MICROPOLIS — Music & Multi Media Apps, Novell Certified

Capacity	Model		Specifications	Int.	Ext.
765 Mb	M1624	5.25"	14 MS, 5 yr. War. SCSI-2	$1259	$1349
1.2 Gb	M2112	3.5"	10 MS, 5 yr. War. Fast SCSI-2	1679	1749
1.2 Gb	M1598	5.25"	14 MS, 5 yr. War. Fast SCSI-2	1599	1699
1.5 Gb	M1528	5.25"	14 MS, 5 yr. War. Fast SCSI-2	1849	1949
2.0 Gb	M1548	5.25"	14 MS, 5 yr. War. Fast SCSI-2	2135	2235
2.4 Gb	M1924	5.25"	11 MS, 5 yr. War. Fast SCSI-2	2679	2779

Very Quiet – Great For The Studio!

Quantum — Best Byte for MACs!

Capacity	Int.	Ext.	Capacity	Int.	Ext.
ELS 42 Mb	$169	$229	LPS 240 Mb	429	489
ELS 85 Mb	210	270	Pro 425 Mb	879	939
ELS 127 Mb	279	339	LPS 525 Mb	939	999
ELS 170 Mb	319	379	Pro 700 Mb	1185	1245
GO 120 Mb Drive	425	N/A	Pro 1225 Mb, 10 MS	1585	1645
160 Mb GRS 2.5"	519	N/A			

FUJITSU

Capacity	Int.	Ext.
185 Mb 3 yr. warr.	$325	$385
520 Mb 5 yr. warr.	899	969
1.2 Gb 5 yr. warr.	1299	1399
1.2 Gb 3.5" 5 yr. warr.	1759	1819
2.06 Gb 5 yr. warr.	2125	2225
2.4 Gb 5 yr. warr.	2549	2649

CONNER

Capacity	Int.	Ext.
85 Mb, LPS	$225	$285
120 Mb, LPS	279	339
170 Mb, LPS	299	359
212 Mb, 12 MS Fast	385	445
540 Mb	980	1040

Conner Drives Are Apple Authorized.

TOSHIBA

Capacity	Int.	Ext.
1.2 Gb 12MS, 3.5"	$1465	$1525
877 Mb 12MS, 3.5"	1085	1155

SyQuest® Removables

PDI 44 Mb	$389
PDI 88 Mb	489
PDI 88C	619

Includes Media And Software.

Seagate *All Models Available*

Capacity	Model	Int.	Ext.
525 Mb	ST1581N	$1159	$1229
1.2 Gb	ST11200N	1599	1659
1.2 Gb	ST41200N	1379	1479
1.6 Gb	ST41600N	1999	2099
2.1 Gb	ST42100N	2059	2159
2.4 Gb	ST42400N	2899	2999

The FYI Place...

- Opticals & CD ROMs in Stock
- Rack Mount & Canisters Available
- All Enclosures are 110-220 VAC Auto Switching
- Brackets, Cables & Ontrack Incl.
- Instant Terms O.A.C.

800-524-9952
4976 Lincoln Drive, Minneapolis, MN 55435
International Orders Fax 612.935.8352 or Call 612.935.8201 • Dealer Inquiries Welcomed
Volume Discounts Available • Corporate • Educational • Government P.O.'s Accepted
Please Specify For: Mac, HP Workstation, SUN Sparc or IBM RS6000

95,000 MVB's Means We're Right On Target

Call Your MacWEEK Representative Today!
1-800-825-4237

MacWEEK MarketCenter

"Mac Attack"

We attack high Mac prices

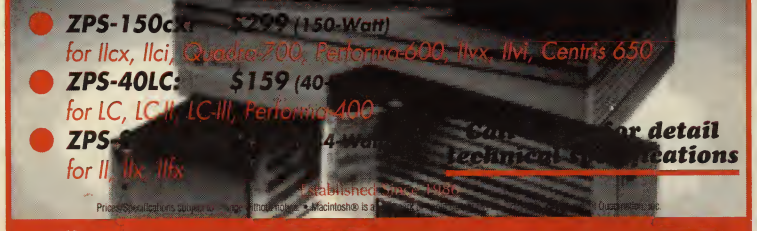
CPUs		Systems		Peripherals	
LC III 4/80	$1185	Classic II 4/80	$945	Apple CD 150	$445
IIsi 3/40	$835	LC III 4/80	$1575	Apple CD 300	$545
IIvx 4/80	$1575	IIsi 5/80	$1485	Color One Scanner	$1205
Centris 610 4/80	$1545	IIvx 4/80	$2055	Laserwriter Select 300	$785
Centris 650 4/80	$2245	Centris 610 4/80	$2025	Laserwriter NTR	$1475
Quadra 700 4/80	$2215	Quadra 800 8/230	$4045	Laserwriter Pro 600	$1875
Quadra 800 8/230	$3565	Powerbook 165c 4/80	$2955	Stylewriter II	$335
Quadra 950 8/0	$4285	Duo 210 4/80	$1985		

We carry the entire Macintosh line

1-800-299-MACS
fax 409-764-6299

General

MAC POWER SUPPLY UPGRADES



- **ZPS-150cx** $299 (150-Watt) for IIcx, IIci, Quadra 700, Performa 600, IIvx, IIvi, Centris 650
- **ZPS-40LC** $159 (40- for LC, LC II, LC III, Performa 400
- **ZPS-** 4-Wa for II, IIx, IIfx

...or detail ...fications

Established Since 1986

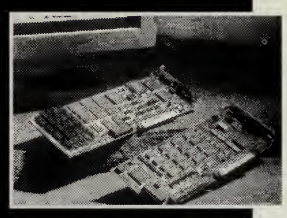
QUADMATION, INC. 800-733-7887 (orders)
408-733-1938 (fax) 408-733-5557 (voice)
1120 STEWART COURT • SUITE-L • SUNNYVALE • CA 94086 M-F 9AM-6PM PST

How can you afford to reach 95,000 Macintosh Volume Buyers?
With MacWeek MarketCenter. Call your MacWeek MarketCenter account representative at 800-825-4237, for information about size and color options priced to fit your advertising budget.

Peripherals

Top-Quality RasterOps Video...

Now On Sale!



FPN	Graphic Displays	Retail Price	REDUCED FALCON PRICE!	You Save!
1100-104	20" Multi-mode Hitachi Display	$1499	**$1313**	$186
1100-105	20" Multi-sync Trinitron Display	$2499	**$2141**	$358
2001-008	21" Color Hitachi Display	$2999	**$2592**	$407
	Color Display Adapters			
1225-579	24XLi Video Board	$2499	**$1839**	$660
1226-031	8XLi Video Board	$1199	**$927**	$272
1225-605	PaintBoard 24	$1999	**$1449**	$550
1226-088	PaintBoard Li	$999	**$779**	$220
	Multimedia			
1225-519	24STV Video Board	$999	**$699**	$300
1225-528	24MxTV Videocard	$2199	**$1715**	$484
1225-580	24 XLTV	$3499	**$2730**	$769
1225-593	MediaTime VideoCard	$1999	**$1560**	$439
1226-060	24 MxQ	$1499	**$1170**	$329

Falcon Microsystems

FREE SHIPPING!

I.M.P.A.C. VISA · VISA · MasterCard

All products in stock! Limited time! Most products shipped same day!*

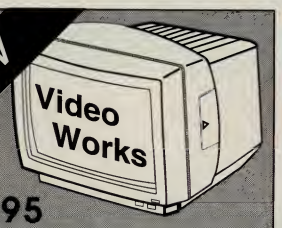
** RasterOps products only*

Don't Miss These Great Values!!

Call Toll Free: 1•800•283•0799

All trademarks are proprietary to their respective owners.

NEW



$1295

20" MultiSync Color Monitor

Mac or IBM compatible
72dpi (1024 x 768)
82dpi (1152 x 870)
1 Year Warranty
30 day money-back guarantee

510/838-1031 Phone
510/838-0689 FAX

Dealer Pricing available

TMS Peripherals

DRIVES · TAPE DRIVES · REMOVABLES

	Shadow	Ext.	*Int.
40 LPS	$229	$229	$169
85 ELS	**279**	**279**	**209**
127 ELS	359	359	279
170 ELS	**389**	**389**	**319**
240 LPS	**519**	**519**	**409**
425 Pro	989	989	929
TMS Pro R45 • cartridge included			399
T155 Tape Backup • tape included			479

**Internal prices INCLUDE standard mounting bracket!*

SIMM · VRAM

1Mb 70ns $31 • 4Mb $125 • 4Mb IIfx $126
PowerBook 2 Mb Fixed $85 • 6 Mb Fixed $270
Quadra VRAM 700 / 900 $22 • 950 $26

ACCELERATORS · VIDEO

DAYSTAR DIGITAL — Universal or SE/30 !

33 Mhz PowerCache $359 • w/ FPU $479
40 Mhz PowerCache $519 • w/ FPU $639
50 Mhz PowerCache $679 • w/ FPU $849

radius — *RADIUS products are to be sold in the United States only & are not for export.*

Radius Rocket 33Mhz 68040, $1969
Rocket 25Mhz 68040 w/ FPU, $1575
PrecisionColor 24Xp FAST 24-bit Color, $475
RocketShare, Multiple Rockets per Mac!, $389

SUPERMAC

VideoSpigot NuBus & **FREE LE Premiere 2.0** $339
VideoSpigot Pro IIsi or Pro NuBus $979
W/ **FREE Adobe Premiere 2.0** Upgrade!
Spectrum/24 Series IV $779
17" MultiMode Color Display $939

SUPRA FAX MODEMS

Fax Modem V.32 $299 • Fax Modem V.32bis $349
Fax Modem Plus $159 • Fax Modem 144 PB INT $299

CALL ABOUT OUR PRICE MATCHING POLICY!

Sales: 9 a.m.–8 p.m. M–F & 10 a.m.–6 p.m. Sat. (ET)
Customer Service/Tech Support 9 a.m.–5 p.m. M–F (ET)
1120 Holland Dr., Ste. 16 • Boca Raton FL 33487
International: 407.998.9928 • **Fax: 407.998.9983**
Compuserve: 75300,2231 • AOL: TMS Periph

800.ASK.4TMS

The Macintosh Link to TV and Video...only $489

Beat the high cost of data display for training, education, sales and marketing. With the Mac DisplayLink, you can display the signal from Macintosh II and Quadra computers on conventional TV monitors, video projectors...even record to tape. Use regular video or switch to S-Video for even higher quality and picture stability. And, with Macromedia Action! Mac you'll have all your presentation needs covered. The Mac DisplayLink: the original link to video.

DISPLAY TECH Multimedia On Display — Mac Display Link

For complete details and ordering information, call

800-578-8546

The Mac DisplayLink requires 4•8, 8•24, 8•24GC or compatible video card. Includes all cables. No software required. Macromedia Action! Mac offer is limited and subject to availability. Distributor and dealer inquiries welcome, call 510-676-9362, or write Display Tech, P.O. Box 6722, Concord, CA 94524

MAC PRINTERS!

QMS • Newgen • HP

QMS 860/600dpi	$ 4095
QMS ColorScript 210	4345
QMS ColorScript 230	6995
Newgen PS 1200B/1200dpi	4575
Newgen PS 660B/600dpi	3795
Newgen PS 880/800dpi	3275
Newgen PS 400P/400dpi	1695
HP LaserJet 4M/600dpi	Call

Serving your computer needs for over 10 years!

U•PUBLISH — *Call Today!*

Tel. (619) 292-8066 Fax. (619) 292-5167

Orders: 1-800-233-3368

PowerBook Video

Presentation Video Output For PowerBook 140, 145 and 170.

PB-10 Video Adapter. Installs easily for use with LCD panels and VGA monitors. **$399.00**. Other models available.

PowerR, Inc.

1606 Dexter Ave. North
Seattle, WA 98109
(206) 547-8000
(800) 729-6970

Dealer Inquiries Welcome.
Visa and MC Accepted.

Applelink: POWERR

SAMSUNG

OPTICAL DISKS AND DRIVES

Rewritable MO Disks
5.25" (600/650MB) $92
3.5" (128MB) $37
100% ISO compatibility

Rewritable MO Drives
5.25" (600/650MB) $2599
3.5" (128MB) $1299
For DOS & MAC

CDI OPTICAL PRODUCTS GROUP
Phone (408) 441-6930
Fax (408) 441-8743

SATURAE

"BIG HARD DRIVES"

800-SATURAE

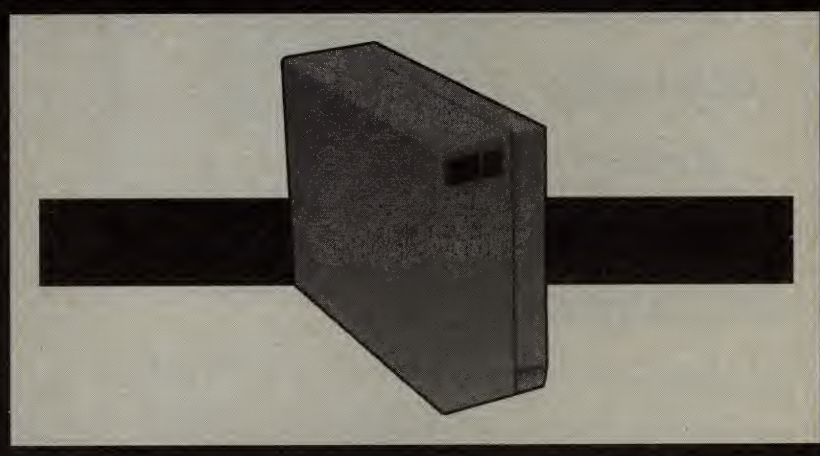
800-728-8723

KNOWLEDGEABLE, FRIENDLY SALES STAFF

RATED MacUser 4½ APRIL 1992

"Pick the ProLine if speed and warranty are your top concerns."
–MacUser, April 1992

"If you can afford the best, the top performers are...Saturae ProLine 500"
–MacWorld March 1993



The Saturae EDGE 1000 features the RARE RS-3105S, one of the world's fastest 3.5" mechanisms. It's 512k read/write cache, 9.5ms seek time, 5400rpm spindle and 33MBit internal transfer rate coupled with our blindingly fast driver software creates absolutely stellar preformance. The EDGE 1000 is available in a variety of models. All models have an auto-switching power supply and a five-year warranty. Our 1000P model features an all-metal case with easy-access on-off and SCSI ID slection in an extremely portable design.

EDGE 1000P $1,899

PROLINE — MADE IN THE U.S.A. — HEWLETT PACKARD

Model	Unformatted Capacity	Size	Seek	Internal Xfer	Internal	External
220	234MB	3.5"	12.6ms	14-20Mbit (MacUser 4½)	$ 789	$ 849
402	425MB	3.5"	12.6ms	14-20Mbit	$ 999	$ 1,069
1003	1.2GB	3.5"	10.5ms	24-42Mbit	$ 1,649	$ 1,719
1290	1.6GB	FH	13.5ms	23Mbit	$ 1,999	$ 2,129
1650	2.1GB	FH	11.5ms	24-42Mbit	$ 2,639	$ 2,769
1910	2.4GB	FH	11.5ms	24-42Mbit	$ 2,959	$ 3,099

EDGE — MADE IN THE U.S.A. — RARE (DEC)

1000	1.2GB	3.5"	9.5ms	33Mbit		$ 1,799	$ 1,879
1600	1.6GB	3.5"	9.5ms	24-46Mbit	NEW!	$ 2,799	$ 2,879

PROLINE — FUJITSU

500	520MB	3.5"	12ms	19-24Mbit		$ 969	$ 1,029
1030	1.2GB	3.5"	9.5ms	25-41Mbit	NEW!	$ 1,749	$ 1,819

PROLINE AND EDGE DRIVES INCLUDE CSG's COPYright™ SOFTWARE

FREE TECHNICAL SUPPORT!

International Orders	(617) 661-8166
Fax Orders	(617) 661-8662
Tech Support	(800) 373-3063

VISA and MC Accepted No Surcharge. AmEx Accepted. POs Accepted on Approval

CALL US! 9AM to 8PM EST Mon-Fri

All drives come complete with software, cables and one of the best installation manuals in the industry. ProLine and EDGE drives are SCSI-2 Fast. ProLine, Academy II and EDGE drives have a five year warranty, Academy and Sankyo tape drives have two year warranties. HP DAT and Vision MO Drives have a one year warranty. Vision drives include one cartridge. Tape Backup drives include one cartridge and Retrospect™ backup software. Prices subject to change–call for current pricing. 30 day money-back guarantee on all 3.5" drives. We offer toll-free technical support from 9AM to 8PM Mon-Fri. All hard drives have a 48-hour turnaround time on warranty repair for the first year

Saturae Corporation 148 Richdale Avenue Cambridge, MA 02140

ACADEMY — QUANTUM

Model	Unformatted Capacity	Size	Seek	Internal Xfer	Internal	External
40	42MB	1"Hi	19ms	8-12Mbit	$ 189	$ 259
85	85MB	1"Hi	17ms	8-12Mbit	$ 219	$ 289
127	127MB	1"Hi	17ms	8-12Mbit	$ 289	$ 359
170	170MB	1"Hi	17ms	8-12Mbit	$ 319	$ 389
240	240MB	1"Hi	16ms	15-30Mbit	$ 439	$ 499
502	525MB	1"Hi	10ms	18-38Mbit	$ 969	$ 1,029

ACADEMY II — QUANTUM

670	700MB	3.5"	10ms	18-38Mbit		$ 1,239	$ 1,299
1000	1.2GB	3.5"	10ms	18-38Mbit	NEW!	$ 1,399	$ 1,469
1170	1.4GB	3.5"	10ms	18-38Mbit		$ 1,589	$ 1,659

ACADEMY II — TOSHIBA

830	870MB	3.5"	12.5ms	12-24Mbit		$ 1,149	$ 1,219

SENTRY — TAPE BACKUP

250	Sankyo 1/4" Tape Drive		$ 649
525	Sankyo 1/4" Tape Drive		$ 799
1000	Sankyo 1/4" Tape Drive	NEW!	$ 999
2000	Hewlett Packard DAT Drive		$ 1,399
5000	Hewlett Packard DAT Drive		$ 1,699

VISION — MAGNETO-OPTICAL

128F	3.5"	30ms	7-10Mbit	Fujitsu	NEW!	$ 1,199

Relax...you're in good company. Since 1978 510-471-6112

From the beginning, Relax's relationship with corporate customers has been strong.

❖

As a matter-of-fact, over 50% of our sales are from repeat customers.

❖

Our customers must be satisfied since the majority of our new customers are from referrals.

❖

We must be doing something right.

RELAX TECHNOLOGY®

20 Inch Trinitron Color! $1,599 Monitor Only

Trinitron Monitor Only 1,599
Business Package* - 256 Color 1,799
Artist Package* - 16 Million Color .. 2,449

* Package includes a new 20" Captronics CDS-8920 Mac compatible Trinitron color monitor, video board, and cable. 72 dpi for WYSIWYG. 1024 x 768.

Video Monitors & Packages

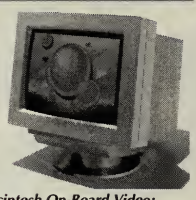
RASTEROPS®

Custom Color 20" System
24-Bit Color - 20" Trinitron Monitor
$4,199*

ProColor 32 3,149
24XLi 1,859
PaintBoard 24 1,459
PaintBoard Li 849
8XL 479
24STV - Multi Media 799
MoviePak 1,549
24XLTV Multi Media .. 2,749
24MxTV Multi Media . 1,649
MediaTime Multi M.... 1,599
ClearVue/Classic 299
ClearVue/LC 299

* Include $200 back direct from RasterOps. Offer expires 3/31/93.

14 Inch 256 Color Monitor! $359
Complete 8-Bit Package - $499



Compatible with Macintosh On-Board Video: LC, LCII, si, ci and Quadra 900/950

MoviePak
Adobe Premiere Special!

MoviePak works with all RasterOps multi-media display adapters to give you full-motion digital video recording, and full-scree playback and print-to-tape capabilities, all in a single-slot solution for any size Macintosh.

$1,549
RASTEROPS®

For a limited time, MoviePak includes Adobe Premiere free - a $695 value!

20 Inch Hitachi 256 Color Monitor! $799 Monitor Only

20" Hitachi Monitor Only 799
Business Package* - 256 Color 999
Artist Package* - 16 Million Color .. 1,649

* Package includes a new 20" Hitachi Mac compatible color monitor, video board, and cable. 72 dpi for WYSIWYG. 1024 x 768.

Your satisfaction is guaranteed or your money back!

radius™

Monochrome Pivot Monitor ... 745
PrecisionColor Pivot 15" 949
Multifrequency. Mac on-board compatible.
19" Monochrome Monitor 899
PrecisionColor Display/19 ... 1,999
Hitachi tube - multifrequency.
PrecisionColor Display/20 ... 2,299
Sony Trinitron tube - multifrequency.
Color Display/21 2,999
Two-page display. Hita chi tube - 1,152 x 870.
Mono Pivot Video Board 249
Color Pivot Video Board 499
PrecisionColor 8XJ 489
256 colors (8-bits) at maximum resolution (1,152 x 882), 4 display resolutions, accelerated.
PrecisionColor 8X 739
256 colors (8-bits) at maximum resolution (1,152 x 882), 4 display resolutions, accelerated.
PrecisionColor 24XP 489
16 million colors (24-bits) at maximum resolution (832 x 624), 2 display resolutions, accelerated.
PrecisionColor 24XK 819
16 million colors (24-bits) at maximum resolution (1,024 x 768), 3 display resolutions, accelerated.
PrecisionColor 24X 1,629
16 million colors (24-bits) at maximum resolution (1,152 x 882), 4 resolutions, non-accelerated.
PowerView (PowerBook) 489
VideoVision 1,949
16 million colors (24-bits) at maximum resolution (640 x 480), 4 display resolutions, non-accelerated, video capture up to 30 frames/sec.
PrecisionColor Software 249
Radius Rocket 33 1,949
Radius RocketShare 399
Radius SCSI-2 Booster 249

20 Inch Sampo OfficePro IIa 256 Grayscale! $599 Monitor Only

Monitor Only 599
Mac II, x, fx, cx, ci Package* 799
Mac LC, LCII, SE/30 Package* 999

* Package includes a new 20" Sampo OfficePro IIa Mac compatible grayscale monitor, video board, and cable. 72 dpi for WYSIWYG. 1024 x 768.

Your satisfaction is guaranteed or your money back!

Ethernet/Network

ASANTÉ

Asanté MacCon3 - 64K 199
The 3-in-1 (Thick, Thin and 10BaseT) Ethernet card for most expandable Macintoshes including the IIsi and SE/30. Not available for the LC or LCII.
Asanté MacCon+ - 64K 159
Economical, 64K high-performance Ethernet for almost every model of Macintosh. Select either Thick/Thin or Thick/10BaseT. The Asanté MacCon+ models for the LC, LCII and IIsi each have a socket for a co-processor.
Asanté FriendlyNet Adapters 79
Designed to work with the new Apple Ethernet cabling system - a plug-and-play networking system which makes Ethernet as simple and easy as LocalTalk.
Asanté 10BaseT Hub/8 239
An economical way to expand your Ethernet network using unshielded twisted pair wiring (10BaseT).
Asanté 10BaseT Hub/12 479
A more sophisticated and larger version of the Asanté 8-port Hub. The most economical way to expand your Ethernet network using unshielded twisted pair (UTP, 10BaseT). Fully supports IEEE specifications..
AsantéHub 1012 1,379
A 12-port, intelligent 10BaseT hub. Built-in expansion slot for internet-working option cards (optional SNMP in-band module). Multiple hubs can be interconnected via BNC, RJ45 and AUI. Works with AsantéView software (optional) for control directly or remotely.
Asanté Print 349
An inexpensive Ethernet-to-LocalTalk converter that easily connects one or two LocalTalk peripherials to an Ethernet network. With no switches to set or installation software to load, it is smart enough to work right out of the box. Thick/Thin or Thick/10BaseT.
TechWorks Ethernet Cards 99
We made a special purchase of TechWorks Ethernet NuBus cards and are offering them on a first-come-first-served basis. Limited to supply on-hand.
Tribe LocalSwitch 1,499
LocalSwitch is a 16-port intelligent packet-switching hub for Macintosh networks. Using standard LocalTalk protocol and twisted pair wiring, LocalSwitch processes many network transmissions simultaneously.

$1,499 Tribe LocalSwitch

Modems

SupraFAX Modem Plus 2,400 199
2,400 bps Modem/9,600 send-receive FAX. v.42bis data compression for up to 9,600 bps data.

SupraFAX Modem v.32bis 14,400 ... 349
14,400 bps Modem/14,400 send-receive FAX. v.42bis compression for up to 57,600 bps data.
All SupraFAX modems include STF and MicroPhone software, cable and have a 5-year Warranty

Quicktel 2400/9600 FAX/Modem ... 139
2,400 bps Modem/9,600 send-receive FAX. v.42bis compression for up to 9,600 bps data. Incl. software.
Quicktel v.32bis 14,400 299
14,400 bps Modem/14,400 send-receive FAX. v.42bis compression for up to 57,600 bps data.

CoStar Printers

$439 AddressWriter personal envelope and label printer

AddressWriter Printer 439
144 x 144 impact dot-matrix print head. Optional label feeder will handle a variety of pin-fed labels for added convenience and value. Specify voltage.

LabelWriter II & LabelWiter II Plus personal label printers

$179 COSTAR

The LabelWriter II and II Plus use direct thermal input technology to produce high-quality labels in a variety of sizes. The LabelWriter can be attached directly to your computer or AppleTalk Network.

LabelWriter II Mac 179
Handles up to 350 labels per roll. Maximum label size: 1-1/8" x 3-1/2". Prints one label in 3-1/2 secs.
LabelWriter II Plus Mac 249
Handles up to 700 labels per roll. Maximum label size: 2-1/4" x 4". Prints one label in 3-1/2 to 7 secs.

300/600/800/1,200 dpi Color & Grayscale Scanners

Tamarack 600 dpi Color Scanner $979 and Slide Attachment $549

Tamarack 600 Color Scanner:
24-Bit Color - 8.5" x 11.5" 979
Slide Attachment (shown) 549
PhotoShop LE (limited version)* ... 99
PhotoShop 2.0 (full version)* 199

Relax Color: (Epson Engine)
24-Bit Color Scanner - 8.5" x 11.5"
300 dpi - 110 VAC 999
300 dpi - 220 VAC 1,099
Color Studio LE (limited version)* 79
Color Studio 1.5 (full version)* 159

Umax Color Scanners:
UC630** - 8.5" x 14"
24-Bit 600 dpi w/PhotoShop ... 1,079
Transparency/Slide Attachment . 789
Auto Document Feeder 479
UC1200S** - 8.5" x 14"
24-Bit 1,200 dpi w/PhotoShop 2,999
Transparency/Slide Attachment . 889

Relisys Color Scanner:
ColdScan 800 - 8.5" x 14"
24-Bit 800 dpi 1,099
PhotoShop LE (limited version)* 99
PhotoShop 2.0 (full version)* 199

* with purchase of scanner, ** includes PhotoShop

SHARP® JX-320 $999
16 Million Color - 300/600 dpi

An affordable, quality, flatbed 8-1/2" x 11", 24-bit color scanner for business and professional use.

Sharp's patented one-pass system ensures quality color while reducing scan times. 600 DPI using Sharp's proprietary software. By strobing three colored fluorescent bulbs through filters the Sharp system ensures optimal color accuracy and eliminates misregistration for clearer reproduction.

The Sharp JX-320 is the first color scanner fully compliant with the new SCSI-2 standard which eliminates the need for special drivers .

Includes the full version of PhotoShop. OCR compatible. Built-in command set includes: downloadable Gamma Tables; Edge Emphasis; Brightness; and, Lightness. 110 VAC only.

Sharp JX-320 Color Scanner 999
Transparancy Option JX-32F3 799

SHARP® $1,499

600 dpi Engine

• 8 ppm • Mac & IBM Compatible
• RISC Processor • PostScript

AppleTalk on-board. Scalable typefaces - PostScript and PCL5 for thousands of fonts. Printer emulations include Hewlett Packard, IBM ProPrinter & Epson. Parallel and serial interface with automatic sensing - Mac's and IBM's can be on-line at the same time! 2 MB RAM (expandable to 8MB).

☑ Check us out! We keep our customers happy by offering them what they want...

☑ **Quality and selection.** We offer a wider choice of award-winning products. More choices makes for wiser selections.

☑ **30 day money back guarantee.** You must be satisfied or we want you to return the product. We count on word-of-mouth advertising. An unhappy customer doesn't work for us.

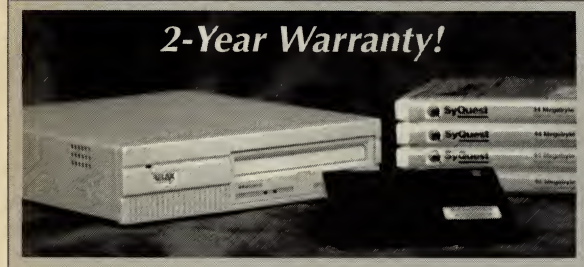
☑ **Service and security.** Since 1978 Relax's commitment to customer satisfaction, has meant quality products and service. Winner of ***MacWorld Magazine's Service Hero Award,*** our sales and service team treats service very seriously

If you need help, our ***Express Service Program (ESP)*** will have you up and running in less than 48 hours - guaranteed! We even follow-up on service calls to insure that you get the help you need and that we are attaining our customer satisfaction goal.

☑ **Cost Savings.** We save you money on the products you want, and we'll be there to service you tomorrow. After all, how good is a "deal" if the company goes broke?

☑ **Knowledgeable sales staff.** We take pride in our courteous and knowledgeable sales staff. Sales and technical support goes hand-in-hand with the wide selection we offer. Each sales rep is also a product manager, so expert technical assistance isn't far away.

SyQuest Removable Drives



FEATURING
SyQuest® REMOVABLE TECHNOLOGY

	$389	$489	$589
	Mobile 44	Mobile 88	Mobile 88+
	SQ555	SQ5110	SQ5110C
Cartridge	1 to 4 / 5 to 9 / 10 +		
44 Meg.	63 / 61 / Call		
88 Meg.		98 / 95 / Call	

New! Mobile 88+ reads and writes both 44 and 88 Meg. cartridges!

Bernoulli Mac 90

IOMEGA

$499

Iomega has enjoyed an excellent reputation for years as the provider of high quality removabble storage for IBM computers.

Now they have brought their years of experience to the Macintosh.

90 megabytes of storage in each data cartridge. Includes software and cables.

5-year warranty on all data cartridges!

Cartridges - $169

DAT, ExaByte & Teac Tape Drives & Media

Tape Drives include media, software and cables!

Tape Drives:
- 160 Meg. Tape Vista - TEAC 449
- 250 Meg. Tape Vista - Archive 599
- 600 Meg. Tape Vista - TEAC 699

DAT & ExaByte Drives Include Retrospect Software!

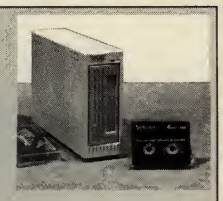
DAT 4 mm Drives:
- 2.0 Gig. DAT Sierra - Archive 1,199
- 2.0 Gig. DAT Sierra - ExaByte DAT . 1,299
- 2.0 Gig. DAT - Hewlett Packard 1,399

Compression DAT 4 mm Drives:
- 8.0 Gig. DAT Sierra - Archive 1,399
- 8.0 Gig. DAT Sierra - ExaByte DAT . 1,499
- 8.0 Gig. DAT - Hewlett Packard 1,599

ExaByte Helical Scan 8 mm Drives:
- 2.2 Gig. Tape Vista - ExaByte 8200 . 1,799
- 5.0 Gig. Tape Vista - ExaByte 8500 . 2,799

8.0 Gig. DAT Tape

Retrospect software & tape included!



$1,199 ARCHIVE®

Relax 600 Meg. Tape 699

Selected for performance, value and service. Quality at low cost. Perfect for backing up hard disks up to 600 megabytes. Complete package includes software, cables and media. MACWORLD - 12/92.

MACWORLD MW EDITORS' CHOICE

Introducing FreeLance™

Desktop performance that fits in your pocket!

Our powerful 80MB, 120MB and 160MB FreeLance drives are designed for the Apple PowerBook computers - we even use the same quality drives Apple uses! Light (less than 10 ounces) and fast (17 ms seek time). The FreeLance feature quiet and reliable Quantum Go•Drives for added value. Our FreeLance Value Pack includes everything you need to work with the PowerBook including a power supply and SCSI cable for the Macintosh. The FreeLance Dock™ adds battery power and charger for convenience and extended use on-the-go.

FreeLance Drives:
- 80 Meg. FreeLance Go•Drive 429
- 120 Meg. FreeLance Go•Drive 559
- 160 Meg. FreeLance Go•Drive ..... Call

Includes your choice of 110V or 220V power supplies and a PowerBook or standard Macintosh SCSI cable.

FreeLance Dock, Battery & Charger 229

This is a complete package, including your choice of 110V or 220V charger, a PowerBook 140-180 compatible battery, transportable power cable and SCSI cable. Use the FreeLance Dock on-the-go or in the office. The battery is interchangable with the PowerBook's. You can even fully recharge your PowerBook's battery in just 45 minutes while you're working.

FreeLance Options:
- PowerBook Battery - 140-180 49
- SCSI Cable - DB25M/DB25M 19
- SCSI Cable - DB25M/Cent50M 19
- Adapter - DB25M/HDI30 19

Premium Hard Disk Drives - Macintosh

Seagate 3-1/2" Half Height

	Internal	External
108 Meg. - ST1133N, 15 ms.	239	299
510 Meg. - ST1581N, 14 ms.	939	999
1.0 Gig. - ST11200N, 14 ms.	1,499	1,559
5-1/4" Full Height - WREN		
1.0 Gig. - ST41200N, 15 ms.	1,239	1,299
1.4 Gig. - ST41651N, 15 ms.	1,739	1,799
1.9 Gig. - ST42100N, 12.9 ms.	1,839	1,899
5-1/4" Full Height - ELITE Ultra-High Performance		
1.4 Gig. - ELITE-I, 11.5 ms.	1,839	1,899
2.1 Gig. - ELITE-II, 11 ms.	2,539	2,599
3.5 Gig. - ELITE-III, 11 ms.	3,439	3,499

Fujitsu 3-1/2" Half Height

520 Meg. - 2624FA, 9 ms.	939	999
5-1/4" Full Height		
1.2 Gig. - 2266SA, 11.5 ms	1,539	1,599
2.0 Gig. - 2652SA, 11.5 ms	2,439	2,499

Maxtor 3-1/2" Low Profile/Low Power

120 Meg. - 7120S, 15 ms.	279	339
213 Meg. - 7213S, 15 ms.	399	459
5-1/4" Full Height		
645 Meg. - XT8760, 16.5 ms.	1,299	1,359
1.7 Gig. - Panther, 13 ms.	1,799	1,859

Quantum 3-1/2" ELS Low Profile

42 Meg. - ELS42, 19 ms.	189	249
85 Meg. - ELS85, 17 ms.	239	299
127 Meg. - ELS127, 17 ms.	299	359
2-1/2" - Internal for the Mac PowerBook only		
80 Meg. - Go•80, 17 ms.	329	429
120 Meg. - Go•120, 17 ms.	459	559
3-1/2" PDS, PRO & LPS Series		
240 Meg. - LPS240, 10 ms.	499	559
525 meg. - LPS525, 10 ms.	939	999
1.0 Gig. - PD1050S, 11 ms.	1,439	1,499
1.2 Gig. - PD1225S, 11 ms.	1,699	1,759

Conner 3-1/2" Half Height

	Internal	External
42 Meg. - CP-3040, 25 ms.	179	239
85 Meg. - CP-30080E, 17 ms.	239	299
120 Meg. - CP30100, 19 ms.	279	339
170 Meg. - CP-30170E, 17 ms.	339	399
212 Meg. - CP-30200, 12 ms.	399	459
545 Meg. - CP-30540, 8.5 ms.	999	1,059

Hewlett Packard 3-1/2" Half Height

422 Meg. - HP2235, 12.6 ms.	1,139	1,199
1.2 Gig. - HP2247, 12.6 ms.	1,739	1,799
5-1/4" Full Height		
1.2 Gig. - HP97558, 13.5 ms.	1,639	1,699
1.6 Gig. - HP97560, 13.5 ms.	2,199	2,259

Special Purchase

$1,239

15 ms. average access.
External Model $1,299

1.0 Gig. Hard Disk

Seagate

Nobody knows more about performance hard disk drives than Seagate! This is an exceptional value for a fast and dependable top-of-the-line model. Compare. For a limited time, we are offering a Gigabyte hard drive for what others charge for their 500 megabyte model! Available only while quantities last!

Save $100. Model ST41200NM.

Macintosh CD-ROM Players

Kodak Multisession Compatible

$649

Toshiba CD-ROM - XM3401B 649

Featuring the **Multisession Toshiba XM3401B**. Vista CD-ROM provides state-of-the-art performance including a sealed contamination free environment and an automatic lens cleaning mechanism which dramatically improves reliability. **Fast 200 milliseconds average access.** Full audio control via software is provided by the **Music Box** software. Includes sample CD.

Texel Multisession CD-ROM 549

Featuring the **Texel DM3024**. This is a performance drive with 235 ms average access and double the normal speed - 300 KBytes/sec. data transfer. Kodax compatible!

$299

Portable Player

NEC

CD-ROM - Mesa Portable 299

New! Manufacturered for Relax by NEC, the **Mesa** is a fast, portable and fully functional CD-ROM player for music and data. Call for details about this bargain performer.

Rewritable Optical Drives

$1,499
600 Meg. ISO Optical

- Industry Standard - ISO Certified
- Macintosh - IBM Compatible
- Low Cost - High Performance

Large, fast and affordable. We offer a variety of solutions for your large capacity data storage needs.

600 Meg. Optimem ISO Model 750 . 1,599
Premium Quality at Low Cost - 60 ms. access.
While Supplies Last - Limited Quantity!

600 Meg. Ricoh ISO 5030E-II 1,499
Factory reconditioned. Full warranty. 67 ms. access.

600 Meg. Ricoh ISO 5031E New! ... 2,599
High performance - 35 ms. average access.

1.0 Gig. Maxoptix Tahiti-II 3,499
High capacity - 1 Gigabyte - 35 ms. average access.

600 Meg. Pioneer MultiFunction 2,199
Rewritable and WORM in one unit.

600 Meg. Pioneer WORM 1,799
Premium quality, best selling WORM

Media:

	1 to 4	5 +
128M 3-1/2" Optical	39	35
600M 5-1/4" Optical Plastic	99	95
600M 5-1/4" Optical P 5-Pk	475	460
600M 5-1/4" Optical Glass	169	159
1.0G Glass, Maxoptix	239	229
600M Multifunction	179	169
600M WORM, Pioneer	109	99

128 Meg. Optical
Macintosh & IBM compatible
$999

Each 3-1/2" erasable optical cartridge holds over 120 megabytes of data! The **Sierra MO** (shown) is an ideal primary or backup storage device for IBM or Macintosh personal computers. Featuring the Panasonic, RICOH or EPSON drive, the **Sierra MO** is IBM and SONY compatible - and it is faster! Complete package - includes SCSI cable, On Location software, and power supply.

Includes media, software & cables!
- 128 Meg. Ricoh ISO 1,099
- 128 Meg. Epson ISO 1,049
- 128 Meg. LMSI - Panasonic ... 999

Verbatim®

Verbatim Media:

	1 to 4	5 +
128 Meg. 3-1/2" Optical	49	45
128 Meg. 3-1/2" 5-Pk	235	195
600 Meg. 5-1/4" Plastic	109	105
600 Meg. 5-1/4" P 5-Pk	495	475

6-Disc CD-ROM Mini-Changer
More than 3 Gig of Data On-Line!

PIONEER $949

Each compact, easy-loading magazine holds up to 6 different discs. **Additional Mini-Changers can be daisy-chained together to create a CD-ROM library of over 20 Gigabytes of on-line information!** Compatible with SUN, IBM and Macintosh. Can even be used as a CD-Audio jukebox! Full audio control via software is provided by the **Music Box** software (included). Includes SCSI cable, Mac software, and sample CD-ROM. **New - DRM-604X. 4 times the transfer rate - 600K/Sec.**

DRM-600A 6-Disc .... 949 DRM-604X 6-Disc . 1,499

SIMMS - Video Memory - Accelerators

1 Meg $26 • 2 Meg $59 • 4 Meg $119 • 8 Meg $279 • 16 Meg $499
PowerBook 140/170 - 6 Meg $199 • Quadra 900 Accelerator $139

Mac II, IIx, IIcx, IIci & Quadra:
- Classic 3 Meg. Card w/1 Meg. 49
- 1 Meg. - 1M x 8 - 120 26
- 1 Meg. - 1M x 8 - 100 29
- 1 Meg. - 1M x 8 - 70 32
- 2 Meg. - 2M x 8 - 80 59
- 4 Meg. - 4M x 8 - 80 119
- 4 Meg. - 4M x 8 - 70 129
- 8 Meg. - 8M x 8 - 80 279
- 16 Meg. - 16M x 8 - 80 499
- 16 Meg. - 16M x 8 - 80 (Low) 529
- 16 Meg. - 16M x 8 - 70 (Q-950) 499

Mac IIfx:
- 4 Meg. - 4M x 8 - 70 (IIfx) 149
- 8 Meg. - 8M x 8 - 80 (IIfx) 299
- 16 Meg. - 16M x 8 - 80 (IIfx) 599

Video Memory:
- Mac LC - 512K Video SIMM 49
- Quadra 700 - 256K Video SIMM . 29
- Quadra 900 - 256K Video SIMM . 29
- Quadra 950 - 256K Video SIMM . 29

All SIMMS are guaranteed and are covered by our limited lifetime warranty! Call for latest prices!

Mac Powerbook:
- Powerbook 100 - 4 Meg. Card .. 149
- Powerbook 100 - 6 Meg. Card .. 199
- Powerbook 140/170 - 4 Meg. 159
- Powerbook 140/170 - 6 Meg. 209
- Powerbook 160/180 - 6 Meg. 219
- Powerbook 160/180 - 8 Meg. 299
- Powerbook 160/180 - 10 Meg. .. 399
- Powerbook 210/230 - 8 Meg. 399
- Powerbook 210/230 - 10 Meg. . Call
- Powerbook 210/230 - 20 Meg. . Call
- PowerBook 12-Hour Battery Pack 49

Accelerators & Cache:
- Co-Processor - Mac LC 79
- Co-Processor - Mac Classic II 79
- IIci Cache Card 169
- IIsi Cache w/FPU Socket 149
- IIsi Cache w/FPU Installed 199
- Classic Accel w/Co-Processor ... 199
- SE Accelerator w/Co-Processor . 279
- Quadra 700/900 Accelerator 299
  7VS-A Increases processor speed from 25MHz to 30MHz!
- Quadra 900 Accelerator 139
  7QDOD-9 Increases processor speed by 25% to 33MHz!

Call or FAX for Fast Service!

FAX 510-471-6267 Hours: 8 a.m. - 5 p.m. PST, Mon.-Fri.

VISA, Mastercard, C.O.D. No billing until product is shipped. No surcharge for credit card, terms available for approved accounts. We ship same day via **Federal Express**.

FEDERAL EXPRESS · MasterCard · VISA

© 1993 Relax Technology, Inc., 3101 Whipple Road, Union City, California 94587-1291. RELAX, FreeLance, Sierra, Mesa, Mobile, Pocket Portable, View II, and Vista are trademarks of Relax Technology, Inc. All Trademarks and Registered Trademarks are the property of their respective holders. Prices subject to change without notice. Not responsible for typographical errors.

RELAX TECHNOLOGY®

We will BEAT any competitor's price for comparable product - call for details!

510-471-6112

Relax...you're in good company. Since 1978. 510-471-6112

IMS

International Mac Specialists

15502 Mosher Avenue • Tustin, CA 92680

Int. (714) 259.7636 24 hour FAX (714) 259.7850 AppleLink®: IMS.TUSTIN

SIGMA DESIGNS *monitors*

ColorMax™ 15
for PowerBook 160,180 and Duo computers $819

Power Portrait™
for Mac Plus, Classic, Classic II, SE, SE/30 & PowerBook computers $679

• Call for information about other Sigma Designs products
• Power Portrait™ shown.

External Optical Drives

RICOH	600MB	5030E2	$1999
SONY	600MB	SMO-E501	$2299
600MB MO Cartridge			$99

• MO drives carry manufacturers warranty

External Modem Blowout!

2400 bps Send/Receive Data Modem	$79
14,400 bps Send/Receive Fax 14,400 bps Send/Receive Data Modem	$329
PowerBook™ Modem 9600 bps Send/4800 bps Receive Fax 2400 bps Send/Receive Data Modem	$99

• Includes Quick Link II™ software & cable

BATTERY TECHNOLOGY, INC.

PowerBook Battery	$65
BatteryCharger	$129.95

External Half Height Magneto Optical

MOST (Mass Optical Storage Technologies)

RMD-5000	$999
128MB Optical Cartridge	$40

•Formatted Storage Capacity 128 to 256MB.
•35.2ms average seek time.
•47.7ms average access time.

TWINCOM™ Modems

24/96 PowerTwin - An internal 2400 baud Hayes compatible data modem for PowerBooks. Group III fax at 9600 send and 4800 receive. $129

14.4 PowerTwin - Internal 14,400 baud data modem with V.32, V.32bis, V.42, V.42bis and MNP 2-5, Group III V.17 fax. $299

• Complete with data and fax software.

•Unformatted Capacity	•Model	•(ms) •Int.	•Ext.

FUJITSU

• Drives have five year warranty

425MB	M2623FA	9	$839	$899
520MB	M2624FA	9	$945	$1005
1.1GB	M2694SA	8.5	$1695	$1760
1.2GB	M2266SA	14.5	$1395	$1495
2.0GB	M2652SA	14.5	$2395	$2495
2.4GB	M2654SA	14.5	$2595	$2695

Quantum

• ELS, LPS, PRO drives have two year warranty
• Go-drives have one year warranty

42MB	ELS42	19	$175	$235
85MB	ELS85	17	$215	$275
127MB	ELS127	17	$289	$349
170MB	ELS170	17	$319	$379
240MB	LPS240	10	$439	$499
425MB	PRO425	9	$879	$939
525MB	LPS525	10	$939	$999
700MB	PRO700	10	$1195	$1255
1.0GB	PRO1050	10	$1365	$1425
1.2GB	PRO1225	10	$1595	$1655
80MB	Go•Drive	17	$325	$425
120MB	Go•Drive	17	$439	$539
160MB	Go•Drive	17	$519	$619

SyQuest TECHNOLOGY

• Drives ship with one cartridge
• Drives have two year warranty
• Cartridges have one year warranty

44MB	IMS 44MB External	$389
88MB	IMS 88MB External	$489
44MB	44MB Cartridge	$64
88MB	88MB Cartridge	$99
2/44	Dual SyQuest 44MB	$729
2/88	Dual SyQuest 88MB	$899

SCSI DOS Solutions

8 Bit	SCSI Host Adaptor	$95
16Bit	SCSI Host Adaptor	$145

Maxtor®

• 3.5" drives have one year warranty
• 5.25" drives have two year warranty

120MB	7120	15	$265	$325
207MB	7213	15	$385	$445
330MB	LXT-340	15	$635	$695
535MB	LXT-535	12	$975	$1035
645MB	XT-8760S	16.5	$1179	$1279
1.2GB	PO-12S	13	$1425	$1525
1.7GB	P1-17S	13	$1725	$1825

External Drive Housings

Full Height	$145
Half Height	$85

Closed or Open Front Bezel. Includes all necessary cabling & "SCSI Specialist" formatting software.

Call for latest pricing.
Mac Memory DAYSTAR DIGITAL ASANTÉ

ORDERS (800) 643.3591

IMS Hard Drives ship with SCSI Specialist formatting software and all necessary cabling. No surcharge for Visa/Mastercard. Prices and product availability subject to change without notice. Not responsible for typographical errors. Apple, the Apple logo, and Macintosh are registered trademarks of Apple Computer, Inc. All brand names and product names are trademarks or registered trademarks of their respective owners.

Peripherals

MacSee
Desktop Publishing, Multimedia
CAD & Networking source
16711 HAWTHORNE BLVD. • LAWNDALE, CA 90260
800-950-6711
Fax: (310) 793-0041

New Graphic Design Location
call for Demonstrations
Tel: (818) 986-9099
Fax: (818) 986-9171
16661 Ventura Boulevard
Encino, CA 91436

Desktop Publishing, Multimedia & CAD

Truevision Nuvista+ 2mb	$2388
Sony V-DECK Professional	$1450
Sony 128MB Optical drive	$1280
Microtek IIXE-1200dpi Scan.	$1099
2 GB DAT	$1199
UMAX-800dpi w/Transparency	$1899
Thunder 24	$2199
Wacom 6x9 tablet	$459
DigiFilm	CALL

CORPORATE LEASING PROGRAM AVAILABLE
PRICES ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

Special
Quadra 950
68mb RAM
425 mb
Quantum hard disk
$7375
no keyboard or monitor

SYQUEST 44/88c	$419/649
CD-ROM	$399
Quantum 425S	$749
Conners 544S	$889
1 GB Fujitsu	$1299
1.7 GB Maxtor	$1799

Macintosh

		Power Books	
LCII 4-80	$999		
LCIII 4-80	$1299	145 4-80	$2169
Centris 650 4-400	$3099	160 4-80	$2489
Quadra 800 4-400	$4275	165	CALL
Quadra 950 1GB	$5899	180 4-80	$3899

MONITORS

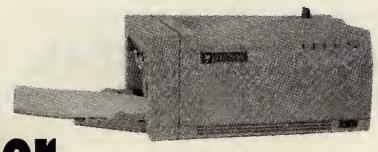
E-Machine T16II	$1199	SuperMac 17-T	$999
Radius Precision 20" s	$2389	NEC 6FG	$2380
SuperMac 21"GS	$1099	Sony 20" 1936	$1999
SuperMac 21" Color	$2480	Hitachi 21" color	$2260

PRINTERS

Data Products 1555/1560 -PCL/PS dual bin 400dpi	$3185
TI PS 17/35 - 300dpi Postscript 9ppm	$1169/1459
NEC model 95 - 300dpi Postscript 6ppm	$1389
QMS 860 11x17 - 600dpi Postscript dual bin	$3799

Major Manufacturer

Postscript Laser Printer



- MAC & PC Compatible
- 2 MB RAM

RISC - Processor On Board

- Canon Engine 4 Pages / Minute
- 35 Apple TrueType Fonts
- PostScript and HPII Compatible
- Parallel, Serial, AppleTalk Interfaces

$ 799.99 Plus S&H

TREDEX
5306 Beethoven Ave.
Los Angeles, CA 90066
Visa, MC, & Discover Accepted

800-338-0939
California: 310-301-0300 Fax: 310-301-0313

MEMORY/HARD DRIVES

88 MB w/Cartridge	$489
88 MBC w/Cartridge	$599
Cartridge	$99
SYQUEST SPECIAL — 44 MB Removable w/Cartridge	$425
Cartridge	$64

SIMMS – Lifetime Warranty

SIMMS 1 MEG X 8 SIMM 80ns	$31
4 MEG X 8 SIMM 80ns	$125

Quantum 42MB (Internal)	$188
Quantum 85MB (Internal)	$235
Quantum 127MB (Internal)	$298
Quantum 170MB (Internal)	$348
Quantum 240MB (Internal)	$498
Quantum 1.2GB (Internal)	$1518
*Maxtor 210MB (Internal)	$388 *Best
External Hard Drive Kit for MAC	$109

AXONE 1-800-955-0388
AXONE Computer Systems, Inc.
14 West Ave., Wayne, PA 19087
Tel: (215) 687-8930 Fax: (215) 971-0559
University & Corporate Orders Welcome

Tell your source!
I found it in
MacWEEK MarketCenter.

Used Equipment

THE PRE-OWNED ERA
(1985-Present)

The age of carefully managed resources and efficient use of capital. A revolutionary stage in the use and maintenance of technology. A period of innovation in used computer remarketing begun shortly before the turn of the 21st century.

Pre-Owned Electronics
INCORPORATED
Specialists in Used Apple & Macintosh Computers, Parts & Exchange Repairs. Call for a Catalog.
(800)274-5343 INTL: (617) 275-4600 FAX: (617) 275-4848
ALL PRE-OWNED ELECTRONICS, INC. TERMS AND CONDITIONS APPLY

1 YEAR WARRANTY
FEDEX® REPLACEMENT

THINK FAST
THINK BIG
THINK MacSwap
For your next Mac IIci, FX or Quadra
1-800-622-7927
MacSwap Woodbridge, NJ • Monday-Friday 9am-6pm EST

ALLON COMPUTER

CLEARANCE SALE!!!

CPU Special
Mac IIfx 4/0 NEW ..... CALL

PRINTERS & SCANNERS

Tektronix IIPxi	$2995
HP LaserJet IIID for Mac	$1895
HP Scanjet IIc for Mac	$995
HP 7475A Plotter	$295
HP PaintWriter XL	$595
HP DeskWriter C	$395

New HP SCSI Internal Hard Drives
677 meg full height (C2451M) $995

MONITORS

Radius Precision Color 20	$1895
SuperMac/RasterOps Dual Mode Trinitron	$1695
Radius Precision Color 19	$1695
Radius FPD	$395

ALL EQUIPMENT SOLD WITH 90-DAY WARRANTY.
Information: 203/227/6902
Sales: 800/688.5554 Fax: 203/227.8102

Spend your ad dollars wisely.

Advertise in MacWeek and reach subscribers who are personally involved in purchasing Macintosh hardware, software and services.

Of MacWeek subscribers:

- 95% initiate Mac product purchases
- 95% are involved in selecting Mac brands to buy
- 79% are involved in selecting purchase source
- 42% authorize purchases

For more information how your advertising can reach these active decision makers, call your MacWeek MarketCenter account representative today at 800-825-4237.

Source: MacWeek 1992 Study of Microcomputer Product Ownership and Buying Plans

What's the most cost effective way to sell to your lucrative audience?

MacWEEK MarketCenter

EXTRA!! EXTRA!!

Shreve Systems has slashed prices on its Demo Macs and printers!!

Brand New Mac IIfx 4/0
(Monitor & keyboard not included)

Mac IIfx,
The Ultimate Mac Server

40-MHz, 6-Nubus slots, Math CO-processor, and Heavy-duty power supply (for the heavy duty user).
Surpasses most 68040 machines during processor intensive tasts!!

****Worlds least expensive color Macintosh!!****
(includes Mac LC, 2-meg RAM, 40-meg hard drive, color monitor, 800k drive, keyboard, and mouse)
Mac LC 2/40.....$849.

800-227-3971

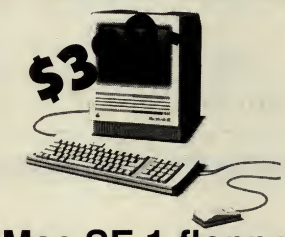
Mac II 0/0
Enjoy the freedom of 6-slots!!
(Monitor not included)

Demo Mac CPUs

Our Macs are minimum configurations so you can build to suit your individual needs.

Plus 1-meg	$299
SE 1-floppy	399
Mac LC 2/0(800k floppy)	499
Mac II 0/0	599
Mac IIx 0/0	1299
Mac IIcx 0/0	999
Mac IIfx 0/0	1999
Mac Portable 2/40	799

* External Apple CDSC (CD ROM)...$199.



Mac SE 1-floppy
(keyboard extra)

Demo Printers

Genuine Apple Quality!! Fully refurbished!!

Laserwriter Plus
8-ppm, 300 dpi, postscript

Imagewriter I	179
Imagewriter I (15")	229
Imagewriter II	299
Imagewriter LQ	349
Laserwriter	599
Laserwriter Plus	699
Laserwriter IInt	999
Laserwriter IIntx	1599

Upgrades

Mac 512kE to Plus	$99.
IIci to Quadra 700	Call.
IIcx to Quadra 700	Call.
Mac SE FDHD ROM & Drive	299.
Mac IIcx to IIci	799.
SE to SE-30 logic board	799.

Upgrade Special!!
Mac IIx to IIfx only...$999.
Mac II to IIfx logic board upgrade, add $300.
"At these prices, why buy an accelerator."

Parts

Express shipping our specialty!!

Logic Boards

Mac Plus	$129.
Mac SE	129.
Mac Classic	99.
Mac LC	349.
Mac II	399.
Mac Portable	299.
Mac IIcx	699.
Mac IIx	899.
Mac IIci	1099.
Mac IIfx	1699.

Exchange Parts Specials!!

Trade in your old part & SAVE!!

Mac Plus/512 power supply	$75
SE/SE-30 power supply	99
SE/SE-30 analog bd	69
Mac II logic bd	299
SE-30 logic bd	229
Classic logic bd	99
Classic power supply	49

Power Supply

Mac Plus	89.
Mac SE-SE/30	69.
Mac Classic	149.
Mac LC	79.
Mac II	189.

Cases

Mac II	179.
Mac SE	39.
Mac Classic	39.
Mac LC	149.
Mac SI	149.

Misc. Parts

IInt Logic board	$229.
Personal L'writer NT lb	249.
800k floppy mech	89.
CRT and YOKE (Used)	49.
Portable 1-meg ram board	69.
PowerBook modem (Apple)	69.
8-bit video board	99.
Apple 1.44 int. floppy	**219.**
NuBus Ethernet board	79.
Apple coax/twinax card (3270)	299.
Portrait video board	25.

Shreve Systems

1200 Marshall St. Shreveport LA 71101
Tech. Support 318-424-7987
Fax: 318-424-9771

Say you saw it in Mac Week!

All equipment is used or demo unless otherwise stated.
Equipment carries a 120-day warranty.
Returns subject to a 15% restocking fee.
Prices subject to change.

800-227-3971

Used Equipment

CRA Systems Inc.
300 South 13th St.
Waco, TX 76701

We Buy and Sell New and Used Systems Any Quantity
Call 1-800-375-9000
International Sales 817-754-2120 TeleFax 817-754-2345
Consultants/Dealers 817-754-2131 Corporate and Univ. PO's Welcome

New Macintosh CPU's (Lc, Si, Ci, Fx, Quadra 700 & 900, Powerbook 100, 140,170)
Used & Demo Macintosh CPU's (Se, Se30, Portable, II, Cx, X, Ci, Fx)

CLEARANCE SPECIALS

LASER PRINTERS

Apple LaserWriter IInt, Ntx,IIf,IIg	Call
Laserwriter Plus w/New Printer Engine	$1499
Mitsubishi G370-10U Color 300dpi NEW	
w/Freedom of the Press Postscript driver	$3999
NEC, NewGen, QMS & TI	Call
QMS Colorscript 100-10 Demo	$5500
QMS PS Jet Plus 8ppm Postscript Laser	$1799
Xante Controllers From	$1295
600 X 600 DPI Postscript Laser	
AMD 29000 Risc Processor,7megs , 8ppm **From**	**$2495**

SOFTWARE OVERSTOCK

Adobe Type Manager	$54
DiskFit v.1.5	$45
Fourth Dimension v.1 ($6 upgrade)	$299
Freehand	$349
MacDraw II (w/free Pro Upgrade)	$279
MacProject II	$249
Mac Write II	$99
Microsoft Works v.1.10	$155
PageMaker 3.02	**$375**

MONITORS

Apple Color & Monochrome	Call
E-Machines Color Page 15" w/8 Bit NEW	$1100
Mitsubishi 16" 1024 X 768 w/8bit	$1599
Radius Greyscale & Color	Call
RasterOps Trinitron, 8 & 32bit From	$2999
Sony 13", 14", 19" Trinitrons	Call
Sony 1908 Industrial Trinitron (New)	$2699
Sony 19" Trinitron DEMO	$1999
Supermac 19" Color New & Used From	$1799

MISC.

FastPath 4 Ethernet Router NEW	$1199
Howtek Scanmaster w/Trans Opt. NEW	$3999
HP Scan-Jet 400 dpi 16GS DEMO	$799
Laserwriter Plus Upgrade Roms NEW	$399
Wren 1.2 GIG Harddrive	$1849
Mirus, Agfa Film Recorders From	$2900
Raster-Ops 24L 24 bit video board NEW	$1599
Rodime 210 Cobra SCSI	$699
Mac II w/040 Accelerator	$3499

CALL US FOR ALL YOUR MACINTOSH NEEDS USED OR NEW

Center Point Technologies

Mac Reconditioned Drives - 1 Year Warranty
External 32MB $149
64 MB $199
Full Page $199
Repairs Monitors
Drives/ Data Recovery
Visa / MC / COD
619 441 6996

WANTED: Used Macs!

- We'll pay you cash for your used Mac equipment. Guaranteed top dollar!
- We also sell refurbished Macs at DISCOUNT with a 1-year warranty.
- Peripherals too! **RENTEX INC.,** Boston, MA (800) 545-2313 *"Our 11th year!"*

Mac II CPU, $599!

Mac II 6-slot CPU, 2 mb. RAM
One-Year Warranty. Quantities Limited
Seiko CM-2050 20" Trinitron,
Direct Factory Refurb. 1-Year Warranty.
Call for a complete list of Specials.

Mac II Color Package Deal

Mac II 6-slot CPU, 2 mb. RAM	599
Seiko Trinitron, 20" ReNewed	1450
SuperMac Spectrum 24 Board	879
PACKAGE PRICE SPECIAL:	**$2799**

The Best in New and ReNewed Macintosh Technology
Solute 145 Palisade, Dobbs Ferry, NY 10522
Tel. (914) 674-6000 Fax (914) 674-6049

IDE & SCSI **used hard drives!**

105 MB
internal **$189!**
external **$249!**

	internal	external
seagate 20 MB	$89	$149
rodime 210MB	$299	$359
wren 330MB	$539	$599
wren runner2 650MB	$899	$999

30 day money-back guarantee • all necessary cables and software included • all external enclosures are new
caledonian technologies, inc. (407) 750 6828

SOFT SOLUTIONS
Mac Service Depot • Est. 1983
907 River Road #98, Eugene, OR 97404
Phone 503/461-1136 • Fax 503/461-2005

MAC PARTS (New OEM)
Repair & Upgrade Kits
Mouse Switches, Cables, etc.
Same Day Shipping

MAC REPAIRS
Including PowerBooks
Component (Part) Level
72 Hour Turnaround
Free Warranty Shipping

MAC PEOPLE
Free Estimates • Advice • Referrals
Larry Pina Repair Books & Software

WELCOME
Visa • MasterCard • COD's
International Orders & Institutional PO's
• CALL FOR FREE CATALOG •

CDR Technology
10 years in business
Over 5,000 units in Stock

External Mac Drives
1 year warranty

21MB.....$120
43MB.....$165
81MB.....$215

With Cables, Software & Manual
Other Sizes Available
Visa/MC/Discover/COD

Phone: 503-626-7104

BUY • SELL • TRADE
CASH FOR YOUR MAC
MAD MACS
1-800-756-6227
San Diego, California

Software/Bar Coding

The Experts' Choice

FOR BAR CODE GENERATION
MacBARCODA
- Generates bar codes in EPSF
- Compatible with all the popular page-makeup packages
- UPC, Code 39, Interleaved 2of5,EAN, ISBN, and ISSN
- **All** the vital features necessary for quality bar code production
- **Full control** over magnification, truncation and bar width reduction
- **Automatic** check digit verification
- **No messing with fonts or film**

0 12345 67890 5
Acknowledged as the best by imagesetter manufacturers and end users in 35 countries of the world.
ComputaLabel

FOR LABEL PRINTING
label designer
- Postscript label printing package
- Any label size & sheet layout
- Create labels using text, PICT & EPS graphics, bar codes & lines
- Incrementing bar codes & numbers
- Variable content and quanity
- Imports from ASCII text files
- Bar codes include UPC, Code 128 Code 39, EAN, Postal Codes & ISBN

ComputaLabel Inc. 28 Green St. Newbury MA 01951 **Tel 800-289-0993** Fax 508-462-9198

BAR CODING FOR THE REST OF US
Bar Code Pro™

The **Bar Code Pro™** desk accessory creates graphics (EPS or PICT) of the 14 most common bar codes to place directly in your documents. **Bar Code Pro™** is an ideal, easy-to-use solution for package design, labels, libraries, inventory, publishing, medical and scientific applications.

Codes: UPC, EAN, ISSN, ISBN, ITF, 39, 25, 128, POSTNET/FIM, Codabar

7 24581 91017 5

"Bar Code Pro™ installs in under 60 seconds and takes less than 5 minutes to master."
— MacWorld (9/92)

SYNEX 692 10th St B'klyn NY 11215
(800) 447-9639
Fax (718)768-3997

Business Mgmt.

Terminal Emulation

MacEmulate®
Use your Macintosh instead of a terminal:
Wyse
TeleVideo
Hazeltine
ADDS Viewpoint
Data General

A fast & full featured emulator, with a great Mac interface!
$199 Discount with 2 or more copies
Call for info or to order. Credit cards accepted. Dealer inquiries invited.

Cornerstone Data Systems
P.O. Box 6260, Anaheim, CA 92816
(714) 772-5527 Fax (714) 772-2838

MacWEEK
reaches 95,000 qualified Macintosh volume buyers at thousands of corporate, government, and university sites.

Software/Desktop Publishing

Color Scanner Calibration
...Specifically for Adobe Photoshop™ Users.

For some companies, calibration is an afterthought, a sideline. At Southwest Software, calibration is our business. We offer more software calibration products on more platforms than any other vendor. In fact, our software technology for calibrating imagesetters, color copiers and color printers is now patented.* Color Encore™ for Scanners is just as precise, and easy to use — it's a Photoshop Acquire plug-in.

Southwest Software — the desktop calibration experts. ◆

$249
Plus shipping and handling and applicable sales tax. MC, Visa, Amex, COD and corporate PO's accepted.

Southwest Software, Inc.
3435 Greystone Drive ◆ Suite 104 ◆ Austin, Texas 78731
Phone orders: **(512) 345-2493**
Fax orders: **(512) 345-2697**

* U.S Patent # 5,170,257. Photoshop is a trademark of Adobe Systems, Inc.

Networking

Introducing AppleTalk Remote Access for VAX VMS !
The connection you want, performance you need, reliability you demand !

ASYNCSERVER™
From Home, the Road ... Anywhere !

Completely Compatible with Apple's AppleTalk Remote Access™ Protocol.
AsyncServeR is VMS™ software which, in conjunction with Apple Computer's Appletalk Remote Access Protocol enables remotely connected Macintosh™ computer users to dial into a host VAX™ system and access their AppleTalk™ network services. With AsyncServeR your VAX system becomes a gateway for remote Macintosh users to connect to AppleShare™ file servers and LaserWriter™ printers on the network.

Dial-Up DEC PATHWORKS for Macintosh™.
AsyncServeR allows remote Macintosh users to dial into the VAX based AppleTalk™ services in DEC PATHWORKS for Macintosh, including file and print services.

Performance, Security, & Low Cost Per User.
AsyncServeR supports speeds as high as 38.4 kb. For added security you can restrict access to selected AppleTalk zones on a per - client basis. No additional hardware is required , just use the modems and serial lines - including DECserver™ (LAT) lines - you already own.

COMPUTER METHODS CORPORATION
525 ROUTE 73 S. SUITE 300, MARLTON, NJ 08053
For Pricing and Technical Information Call
800-969-4360

AsyncServeR is trademark of Computer Methods Corp. Marlton, NJ
AppleTalk Remote Access, Appletalk, Macintosh, AppleShare & LaserWriter are trademarks of Apple Computer Inc, Cupertino, CA.
VMS, VAX, DEC PATHWORKS for Macintosh, & DECserver are trademarks of Digital Equipment Corp. Maynard, MA

Special Services/General

Shrink your storage needs.
Have your data on
CD-ROM

- **Your media doesn't have to leave your office**
- $245.- for a set of two CDs at 640mb each
- Archive all your data conveniently

708.234.7281
DISC - Digital Imaging Service Corp.
11 N Skokie Hwy., Ste G-12, Lake Bluff, IL 60044

Special Services/General

Recycle Your SyQuests!

ISOMEDIA is celebrating the anniversary of the **Recycle your SyQuests** campaign! We can create your PersonalCD for pennies per megabyte.

Announcing the *Professional CD-ROM Backup!*
$250 For: 2 Personal*CD* discs, 48 hour turnaround, Free Return Shipping

Call Toll Free! 1-800-468-3939
We've moved! Be sure to note our new address.
ISOMEDIA supports virtually all backup mediums. Call for details.
VISA, MasterCard, Discover, and Purchase Orders accepted upon approval!

ISOMEDIA™
Optical Data Storage Specialists
2509 152nd AVE NE Suite A • Redmond, WA 98052
Fax (206) 869-9437 • Voice (206) 869-5411

HI-TEK SERVICES, INC.
Specializing in the repair of all Macs!
"Expect the Exceptional"

We just acquired over $2 million of Mac inventory to be sold at Wholesale Prices!!

MOTHERBOARDS	FOR SALE
MAC II/IIX	450/750
MAC II CI/CX	900/700
MAC SE/SE30	300/650
MAC Portable	450
MAC II SI Logic Board	500
MAC LC Logic Board	350

Flat Rate
Volume Discount
90 Day Warranty
3-5 Day Turnaround
Advance Exchange

DEPOT SERVICES
We also repair PS/2's, Compaq, Radius, Wyse and HP.

32950 ALVARADO-NILES ROAD • UNION CITY, CALIFORNIA 94587
TOLL FREE: 800-285-3508 • PHONE: (510) 489-8909 • FAX: (510) 489-5908

THE MAC WIZARD U.S.A.

Model	P/Supply	Logic/Analog Board
128/Mac+	$55	$140
SE	$85	$160/65
SE 30	$85	$215/65
MacII FX	$200	$250-$325
13" RGB	Repair	$125

REPAIR WORK ONLY
SIMMS Socket Repair Kit $24.50
800k/1.4m Disk Drives $75/95
(415)681-3223
(800)742-4539
422 Judah St. Suite 103. San Francisco, CA 94122
Volume Discounts Available

800-WE-FIX-MACS
Longer Warranties • 24 Hr Turnaround

128 to **Plus** Power Supply	$59.00
SE & **SE/30** Power Supply	$99.00
SE & **SE/30** Analog Board	$69.00
800K/1.4 MB. Disk Drive	$79/$99
Mac Plus/SE Logic Board	$139/175
SE/30/Mac II Logic Board	$195/225
Mac +/ADB Mouse Repair	$29/$39
Mac IIsi/IIcx Logic Board	$245.0
Apple 13" Monitor Repair	$125.0
LaserWriter or PowerBook	Call!

NOW REPAIRING POWERBOOKS!
We Also Repair Other Mac Parts
Dealer Inquiries Are Welcome
WE MATCH COMPETITIVE PRICES
(800) 933-4962 Visa/MC (408) 988-2334
2306 Walsh Ave, Santa Clara, CA 95051

HARD DRIVE CRASH?!

- Certified Class 100 Clean Room
- Courteous, Friendly Technicians
- Syquest, Bernoulli and Optical Drives
- Competitive, Reasonable Rates
- Experts in IDE and SCSI Formats
- Macintosh, IBM and UNIX
- Fast Turnaround/Guaranteed Repairs
- We Specialize in Seagate, Conner, Rodime, Quantum and MiniScribe
- We Sell New and Used Drives

computer shoppe (619) 384-4500
(619) 384-4005 24 Hour Fax
225 Balsam Street, Ridgecrest, CA 93555
DATA RECOVERY EXPERTS!

Tell your source!
I found it in **MacWEEK MarketCenter.**

MAC HARD DRIVE EXPERTS

DRIVESAVERS™
415•883•4232

WE CAN SAVE IT!
★ Data Recovery ★ Drive Repair

Graphics

Experts in Macintosh Slide Imaging

Nextwave Productions
NYC, NY
NY State Call 212.989.2727
Outside NY State Call 800.445.9002

Matrix Forte & Chromascript
24 hr BBS
24/72 hr service – $5/$3.50
Rush service available
Volume discounts
Color prints & overheads
High volume slide duplication
Scanning & production services

AMERICAN EXPRESS VISA MasterCard

Slide Imagers®
Digital Output
- Slides, 4x5s, 8x10s
- Hi-Res Color Overheads
- Canon Color Lasers
- Photographic Color Prints
- Color Pre-Press Proofs
- Color/B&W Scanning
- Short-Run Color Printing
- Communication Design
- Quantity Slide Dupes

12-HOUR TURNAROUND
The BEST Product, Price & Support!
Call for info! 800-232-5411
404-874-6740
22 Seventh St • Atlanta, GA 30308

Programming Services

WEATHERFORD CONSULTING
"Legendary Customer Service"
- Sales Force Automation
- Database Development
- Client/Server Technology
- On-Site Evaluation
- 4th DIMENSION® Developers

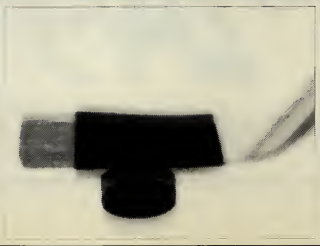
Total Project Life Cycle Support
800 - 846 - 5901
2100 RiverPlace Dr,Flower Mound, TX 75028

BASIC COMPILER
FutureBASIC™
- Editor, Compiler, Source-level debugger
- System 7.x compatible - 32-bit clean
- Writes double-clickable Mac applications
- Creates INITS, CDEVs, XCMDs, DAs, ...
- Comparable in speed to C and Pascal
- Light-years ahead of QuickBASIC™
- Includes QuickBASIC conversion utility

For more information or a brochure call
800.482.4567
ZEDCOR, 4500 E. SPEEDWAY #22, TUCSON, AZ 85712
602.881.8101 - FAX 602.881.1841
FUTUREBASIC IS A TRADEMARK OF ZEDCOR, INC. QUICKBASIC IS A TRADEMARK OF MICROSOFT CORP.

Accessories

Custom Mouse Pads
TEXTURED LEXAN® SURFACE
Your Choice of Pad & Logo Colors
QUALITY GUARANTEED
• (612) 665-3284
• FAX: (612) 665-2604
MicroStore™
800-962-8885



95,000 MVB's Means We're a Sure Goal in March
Call Your MacWEEK Representative Today!
1-800-825-4237
MacWEEK MarketCenter

Join the CD-ROM Revolution!

Call for your free color catalog

CD-ROM Drives

All drives come complete and ready to run.
Includes driver software and choice of cable. Specify #981 MAC to SCSI or #982 SCSI to SCSI.$50 off the EDUCORP Shareware CD-ROM 7.0 (2 CD set) with purchase of any drive.

1815 Texel DM5024.....$579
Higher levels of performance.
Access Time: 265ms **Data Transfer:** 300K/sec
ReliabilityMTBF: 30,000

1824 CD Tech. Porta-Drive T3401.....$599
Utilizes the Toshiba XM 3401 mechanism.
Access Time: 200ms **Data Transfer:** 327K/sec
Reliability MTBF: 50,000
*2 FREE multimedia titles *America Alive* and *Multimedia HANDisc.*

1969 NEC CDR-37.....$449
Access Time: 450ms **Data Transfer:** 150K/sec
Reliability MTBF: 10,000

1970 NEC CDR-74.....$639
Access Time: 280ms **Data Transfer:** 300K/sec
Reliability MTBF: 25,000

L1937 Toshiba XM-3301 w/AGFA Type .$539
Access Time: 325ms **Data Transfer:**150K/sec
Reliability MTBF: 25,000

■ CD Technology T3401 Porta Drive Bundle

CD-ROM Drive Bundles

Texel DM5024, speakers & headphones, 8 CDs only $699!
Includes cable, driver software, power supply and 8 CD-ROM titles: • Sherlock Holmes Consulting Detective I • Color It! • Desert Storm • Publish It! • The Orchestra • World Atlas • Multimedia Encyclopedia • EDUCORP CD Sampler **You pay only $699, #D1815**

CD Tech. T3401 Porta Drive, 10 CD-ROM titles, speakers, & headphones just $749!
Plus cable, driver software, and power supply with **10 CD-ROM titles:** • World Atlas •Multimedia Encyclopedia • Publish It! • Color It! • Desert Storm • Sherlock Holmes Consulting Detective I • The Orchestra • EDUCORP CD Sampler • PLUS coupons for 2 FREE multimedia titles: • Multimedia HANDisc • America Alive
You pay $749, #D1824

NEC Drive Bundles
These new bundles include an NEC CD-ROM drive, external amplified stereo speakers, batteries, driver software, cables and up to 13 CD-ROM titles for as low as $419!

Multimedia Gallery $799
Includes NEC CDR-74 CD-ROM drive with 7 CD-ROM titles: • Grolier Multimedia Encyclopedia • Just Grandma and Me • Great Wonders of the World • Sherlock Holmes Consult. Detective • U.S. Atlas • Color It! • EDUCORP CD Sampler • Includes headphones
You pay $799! (retail value $1860) #M1970

CD Express $419 (Access Time 650ms)
Includes NEC CDR-25 CD-ROM drive with 13 CD-ROM titles: • Publish It! • World Atlas • Lucasfilm Favorites • Total Baseball • Interactive Storytime • The Family Doctor • Great Cities/World v.2 • Aesop's Fables • Manhole • Best of the Bureau • EDUCORP CD Sampler • Plus coupons for the Multimedia Encylopedia and the Kodak Photo CD Sampler.
You pay only $419! #C1964

Optional CD-ROM Bundles

You must purchase a CD-ROM drive from EDUCORP to get these prices.

Classic Collection Plus Bundle $59.95

Title for bundle — Retail Price

Complete Works of Shakespeare.....$29.95
Full text of all of Shakespeare's works including plays, poems, and sonnets. American and Queen's English versions.

Complete Works/Sherlock Holmes...29.95
Join the world's greatest consulting detective! Search for a 3-Pipe adventure. The complete "Canon" full text and medical Casebook of Sir Arthur Conan Doyle.

Audubon's Birds of America.....49.95
Over 3,500 full color lithographs, information on each bird and authentic bird calls.

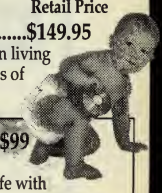
Audubon's Mammals 49.95
The rare and complete 1840 edition of "Quadrupeds of North America." Includes full color plates, information on each mammal and their sounds.

You pay $59.95, #1600
(retail value $129)

Desktop Publishing Bundle

Titles for bundle — Retail Price

People at Leisure $149.95
Capture the essence of American living with over 200 24-bit color photos of people from all walks of life.



Ocean Imagery ..$99
Bring all your productions to life with these vivid images. Over 100 dynamic 24-bit color photos of water sports and scenic ocean views.

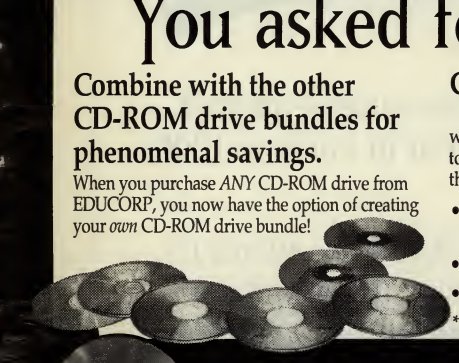
Int'l Graphics Library..299.00
200 global images and backgrounds created by Emmy-award winning designers. A fantastic collection saved in 24-bit color.

Desktop Publishing 2.0....99.95
Literally filled with EPS images that you cannot do without. Also includes fantastic TIFF images and fonts.

$199, #1003 (retail value $647)

"You asked for it, You got it" Customize Your Own CD-ROM Bundle!

Combine with the other CD-ROM drive bundles for phenomenal savings.
When you purchase *ANY* CD-ROM drive from EDUCORP, you now have the option of creating your *own* CD-ROM drive bundle!



Choose from 29 CD titles
Start your CD-ROM library with the titles you want. Here's 29 titles on a variety of subjects for you to choose from. Use code listed below PLUS the code next to the CD-ROM titles you want.

- **Pick any 3 CD-ROM titles listed for only $89.95** (code CB3)
- **5 for $149.95** (code CB5)
- **8 for $199.95** (code CB8)

**Only 1 of each title per bundle.

#	CD-ROM Title	Retail Price
B1.	World Atlas	$79.95
B2.	Multimedia Encyclopedia	395.00
B3.	Time Table of History	129.00
B4.	Desert Storm	39.99
B5.	Cosmic Osmo	59.95
B6.	Beethoven's String Quartet #14	66.00
B7.	Multimedia World Fact Book	49.95
B8.	US History	395.00
B9.	The Orient	49.95
B10.	Sherlock Holmes Consult. Det.	69.95
B11.	Environmental Data Disc	189.95
B12.	Economic Data Disc	189.95
B13.	US Atlas	79.95
B14.	Lucas Game Pack	(bundle only)
B15.	Color It!	299.95
B16.	Publish It!	199.95
B17.	SportsROM	69.95
B18.	FM Waves Artware	149.00
B19.	DTPro	149.00
B20.	Manhole	34.95
B21.	Scenic & Nature III	69.95
B22.	Scenic and Architecture	69.95
B23.	600 Days to Cocos Island	69.95
B24.	Boston Expo CD	15.00
B25.	Funny: A movie in QuickTime	39.99
B26.	The Orchestra	79.98
B27.	Sports Illustrated- Almanac	59.95
B28.	Word Tales	49.99
B29.	The View From Earth	79.95

Over 275 CD-ROM Titles in Stock

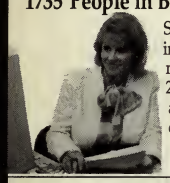
We'll meet or beat any advertised price on CD-ROM products!

Stock Photos

ROYALTY FREE!

Digital stock photography on a variety of subjects without any usage fees!

1735 People in Business $129.95



Show the American work force in your presentations, training manuals and advertisements. 200+ photos of men and women at meetings and on the job. Includes a variety of office related equipment. (Saved in 24-bit color.)

1736 People at Leisure ..129.95
Capture the essence of American living with people from all walks of life. 200 + photos of sporting activities, health, babies, kids, seniors, more. (Saved in 24-bit color.)

1595 Swimsuit v.1.....199.00
Add sizzle to sports, fitness & travel brochures with these beautiful women. Over 200 24-bit color photos.

1698 Donatelli Lingerie v.3
100 photos.....99.00

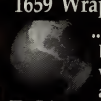
1686 Kids 129.95
Create playful presentations, teachers manuals, and other publications with 200+ shots of babies and kids playing, growing up, more. (Saved in 24-bit color.)

QuickTime

1701 Digital Video Library

.....$79.95
Royalty-free movie clips ideal for your presentations, advertising mock-ups, storyboards, even marketing! 180 quality video clips of cities, places, sports, locations and miscellaneous, plus backdrops.

1659 WraptureReels One



.....179.95
Broadcast quality digital video w/animated textures and looping video clips. Use as animated backgrounds, as a source for static backgrounds in presentations.

1677 ClipTime v.1.....79.95

Add a new dimension to your applications. Grab your audience's interest with any of these 250 royalty-free movie clips.

1919 ClipTime v.2.....199.00

American Media. American personalities, wildlife, events, national parks and more . 350 movie clips, photos, sounds, stingers.

Educate

2081 Butterflies of the World.....$59.95

The first volume in the ZooGuides series, it's a complete interactive, multimedia guide to all 15 butterfly families worldwide. Expert narration, over 300 high quality color illustrations, animation, pictures, 50 QuickTime video sequences, plus a full pop-up index reveals the fascinating secrets of these beautiful insects.

2078 Animal Alphabet.....59.95

Full of hidden surprises and musical interludes, *Animal Alphabet* is an ideal way to let your children explore the world of letters and words. Designed for children ages 3 to 7, it uses children's natural inquisitiveness about animals to help them learn the alphabet. Children and adults alike will be entertained by this interactive multimedia educational CD-ROM.

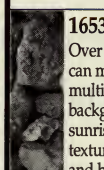
Create

2079 LOOPS.....$79.95
100 royalty-free, seamless, original music tracks in a wide range of moods and styles.

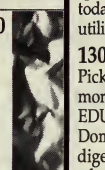
LOOPS

2080 FACELIFT FONTS v.1.....99.95
Anti-aliased screen fonts for screen and video presentations.

FACELIFT



1653 Wraptures One 95.00
Over 120 seamless tileable textures you can map to 3D objects. Tile to create multimedia and presentation backgrounds. From shrubbery to stars, sunrises to a school of piranha. Each texture comes in multiple resolutions and bit-depths. Saved in PICT and MacRenderMan optimized.



1990 Wraptures Two.....95.00
130 more seamless and tileable textures .

Shareware

2067 A Thousand Fonts.....$39.95
Over 1000 fonts categorized by TrueType, Type 1, Type 3 and Bit-mapped fonts. Every typeface from Klingon to Hebrew, traditional to swirly.

1405 7th Wonder.....59.95
Over 100 megabytes of the most up-to-date System 7 specific public domain and Shareware software available today. An unbelievable collection of essential tools and utilities that will enhance your Macintosh.

1300 EDUCORP Shareware 7.0.....199.00
Pick up your resource fork, drop your jaw and take more than a gigabyte out of this 2-CD set featuring EDUCORP's entire collection of Public Domain/Shareware. It's more software than you can digest! Over 20,000+ files on your desktop — education, business, graphics, desk accessories, utilities, sounds, games, more! **$50 off with a CD-ROM drive purchase.**

Games

1611 GameROOM.....$49.95
1908 Battle Chess.....59.95
1737 Sherlock Holmes Consulting Detetective I.....49.95
2068 Journeyman Project 79.95
1339 Cosmic Osmo 49.95
1583 Spaceship Warlock.....69.95

EPS Art

1857 BackIMPACT! Pro $79.95
1856 SlickART Plus.....99.95
Art lettering, images and backgrounds.
1680 GraphTec Graphic Designs.....49.95
450 color & b/w EPS editable images.
1408 Design Toolkit.....99.95
EPS and TIFF images.

FREE Catalog!

Even if you don't see the CD-ROM title you want in this ad, chances are we have it! EDUCORP stocks the largest selection. Call for your free color catalog. (Foreign customers send $4 postage & handling).

We'll meet or beat any advertised price on identical CD-ROM products.

EDUCORP® 1-800-843-9497

Order toll-free in the U.S. and Canada • You'll get access to our Technical Hotline w/any purchase • Prices subject to change without notice • Dealer inquiries welcome

EDUCORP • 7434 Trade Street • San Diego, CA 92121 • Orders: 1-800-843-9497 • Info: 619-536-9999 • FAX: 619-536-2345

MW11

CAREER OPPORTUNITIES

ENGINEER

Information Access Group, a division of Ziff Communications Company, is the leading electronic publisher of information and reference products for the public, corporate and academic library market. We currently have the following challenging opportunity:

Senior Macintosh Software Engineer

Developing the Macintosh version of the InfoTrac library database product will require you to take charge of all aspects of the development from initial design through final production. We require a minimum of 5 years' Macintosh software development experience as well as substantial applications development experience using the C programming language. Experience with Think C development for both System 6 and System 7 is preferred. Previous project leadership experience is desirable. Dept. Code MS/MSE

Information Access Company offers a competitive benefits package, including tuition reimbursement. For immediate consideration, please forward your resume INDICATING APPROPRIATE DEPT. CODE to: Information Access Group, Human Resources, 362 Lakeside Dr., Foster City, CA 94404. FAX: (415) 378-5029. An equal opportunity employer. No phone calls, please.

PostScript Prepress Manager

We're the most progressive color printer in beautiful Greenville, South Carolina and we're moving heavily into all-PostScript color prepress (Mac and PC). We're looking for a mnager with skills in PostScript production, color scanning and film assembly (in that order!) Manage 20 people in 3 shifts. Salary and benefits negotiable. Relocation package available.
Contact Jim Seation at (803) 288-6560.

Aggressive, expanding company seeks individuals with 3+ years programming experience in the following areas:

- Mac/Hypercard/MPW C
- SQL, Windows, SDK, Visual Basic, NT
- Oracle, Sybase
- Novell, Lan Mgr

Send resume to Zyware Systems, 145 Spring Street, 7th Floor, New York, NY 10012. Fax (212) 226-6462.

MAC TRAINING SERVICE/INSTALLERS

J&J COMPUTING INCORPORATED
The knowledge to do your best.

J&J Computing is an Authorized Apple Dealer serving the New York Tri-State Area. We are moving into a larger 8000 sq foot facility on 3/15/93 and now have additional job openings.

Trainers must have 2 yrs experience with training and supporting Quark, Illustrator and Photoshop. in a classroom corporate environment.

Installers/Service Technicians must have experience with Mac OS, Repair & Support. Networking experience a plus. Apple Certified helpful.

Please Fax Salary History and Resume to: Julie Meyer 914-357-0658

IT'S TIME YOU FOUND THE TECHNICAL TALENT YOU NEED.

ADVERTISE IN MacWEEK CAREER OPPORTUNITIES

Career Opportunities Information

For more information about placing an ad call:

Glenda Campbell Roberts
District Sales Manager
(212) 503-5173

or call
(800) 288-HIRE

Send all camera ready artwork to

MacWEEK Career Opportunities
One Park Ave., 3rd Floor, New York, NY 10016

Telecopier (212) 503-5002

Ad Closing: Thursday, 5 PM (EST)
11 days before issue date

No Masquerade

Ever wonder how some recruiters always unmask the most qualified computer talent in Fortune 1000 and technical sites?

The CAREER OPPORTUNITIES NETWORK uncovers the best talent for them. It's a network of two computer newspapers—each recognized by computer professionals as the #1 information source in its field.

PC WEEK takes their recruiting message to 230,000 qualified computer-involved prospects with micro, mini, mainframe and networking experience. Consider passalong readers and the number jumps to 780,000.

MACWEEK, the only weekly of its type, attracts 95,000 Macintosh specialists. And passalong readership pushes the number to over 300,000.

If you'd like to bring more high-calibre professionals out of hiding, call the CAREER OPPORTUNITIES NETWORK today at **212-503-5173** or **800-288-HIRE.** It's time you discovered who they are.

CAREER OPPORTUNITIES

PC WEEK • MacWEEK

Midrange

From Page 1

need the built-in Ethernet of some Centris Macs?"

For many users, however, the primary question is whether to spend hundreds of dollars for the expandability of NuBus slots. Among the '030 candidates, the LC III, which has no NuBus slots, is about $500 cheaper than a similarly configured IIvx, which has three (see chart). In the '040-based Centris line, the 610, which can accept either a processor direct card or a single 7-inch NuBus card with a $99 adapter, is almost $1,000 less than a comparable three-slot Centris 650.

Dave Noble, systems analyst at B.P. Exploration, an oil company in Prudhoe Bay, Alaska, said his company prefers Macs with NuBus slots because many B.P. users require a second monitor, and the company is moving toward Ethernet.

"We've kind of made an assumption that the IIvx will be the low end of what we'll recommend," Noble said. "The Centris 650 will be the midrange, with the Quadras at the top."

Other users, however, said the lower price tag of the Centris 610 outweighs the expandability of the Centris 650. "We don't use any slots; all we need is Ethernet," said Rob Clark, Mac support engineer at GTE Spacenet Corp. of McLean, Va. GTE is switching an order for 30 Mac IIsi machines to Centris 610s.

Playing the slots in the new Mac midrange

	LC III	IIVX	CENTRIS 610	CENTRIS 650
Configuration	4/80	4/80	4/80	8/80
CPU	25-MHz 68030	32-MHz 68030	20-MHz 68LC040	25-MHz 68040
FPU	No	Yes	No	Yes
Slots	1 PDS	3 NuBus 1 PDS*	1 NuBus or 1 PDS**	3 NuBus 1 PDS*
Ethernet	No	No	Yes	Yes
Price	$1,349***	$1,899	$1,969	$3,189

**Using a PDS card blocks one NuBus slot. **The Centris 610 has room for only 7-inch cards and requires a $99 adapter for NuBus. ***Price includes keyboard.*

Some users whose need for slots is limited said they are interested in the LC III's 25-MHz '030 processor and bargain price tag.

"A lot of our people will look at the LC III," said Trish Ventura, Mac support technician at Chevron Corp. of San Ramon, Calif. "Having a lot of slots in a Mac is not that important to us. We really only need one slot for [a Systems Network Architecture] connection."

Chris Sparno, support coordinator at Kinko's Service Corp. of Ventura, Calif., also is a fan of the LC III. "We've never used an LC of any type, but we evaluated the IIvx and decided we were getting more bang for the buck with the LC III," he said.

Apple cut the price of the Mac IIvx, which was introduced in October, by $1,000 when the new Macs made their debut. Some IIvx owners said they were miffed that their 4-month-old machines suddenly look dated compared with the Centris models.

Sean Ogarrio, a designer at Spectra Diode Labs of San Jose, Calif., distributed an open letter of protest on the subject. "I think the 'x' designation means your computer will be 'x-tinct' before you leave the store," Ogarrio said. "I don't see why the IIvx even needs to exist anymore. The speed is like the LC III.

"I'm upset that these machines came out so soon after the IIvx was introduced," Ogarrio said. "I wish somebody had told me, 'Don't buy this. In a few months Apple's going to come out with a Mac that's twice as fast for the same amount of money.' "

While most users said they were pleased by the low prices of the new models, some said Apple's rapid-fire turnover at the midrange makes it increasingly difficult to set purchasing recommendations.

"Apple's product announcements are coming faster and faster," said Seymour Joseph, principal analyst at Bristol-Myers Squibb Research Institute in Princeton, N.J. "It's getting harder and harder for our information services department to create a meaningful standard for people to purchase because a machine we recommend today will be discontinued tomorrow." □

JAMIE TANAKA

Sean Ogarrio, a designer at Spectra Diode Labs of San Jose, Calif., published a colorful letter expressing his outrage about Apple's Mac IIvx upgrade policy.

Warranty

From Page 1

information-systems manager for Electric Power Research Institute of Palo Alto, Calif., welcomed the plan, calling it a "security blanket" for Apple customers.

Dealers, on the other hand, are angered by Apple's proposed warranty plan. Dwindling margins have forced many dealers to charge for customer service and support to recoup lost revenues. And Apple's extended warranty policy is likely to take a significant bite out of their business.

"This is the final nail Apple is putting in dealers' coffins," grumbled an East Coast Apple reseller. "[Apple] wants ownership of the service business."

In contrast, service providers such as ComputerLand Corp. of Pleasanton, Calif., said Apple's shift in strategy will have little effect on their business since they already are under contract to Apple to support Apple products.

ComputerLand CEO William Tauscher said as long as Apple awards a "fair and equitable" reimbursement to ComputerLand and other service providers, "it's a plus for us."

But, he added, third-party service companies that don't already have warranty agreements with major vendors could be hurt by Apple's plan.

Larry Mondry, a senior vice president at Dallas-based computer superstore chain Comp USA Inc., said improved customer support usually means increased sales for stores that offer such services. "[Improved support] makes day-in, day-out computing a less-taxing experience for users," he said. □

Scripts

From Page 1

is released this spring, AppleScript will let users control applications with familiar English terms. Instead of asking a macro program to simulate a text copy and paste, users will be able to issue natural-language statements such as "get the contents of the 'Name' field from FileMaker and insert it into Word."

Whereas command-line systems and even macro programs mimic the user's actions, AppleScript promises to let users manipulate data as objects that are independent from the specific application using them. Words, sounds and pictures become entities a user can move from place to place without regard for each application's proprietary environment.

According to Apple Event Registrar Jon Pugh, AppleScript will provide tools that let users control the transfer of information between applications without having to worry about how each application manages that data.

▸ **Telescript.** General Magic Inc. of Mountain View, Calif., recently announced this communications scripting system, which will give users control over "intelligent agents" residing on platforms as diverse as Macs, personal digital assistants (PDAs) and AT&T Co.'s EasyLink mail system. Their jobs will include filtering and routing mail, as well as retrieving data from a variety of information providers.

Users will be able to control Telescript agents with both graphical and text-based systems. Links between Telescript and AppleScript promise to make accessing and using information even easier.

The next wave of scripting systems will blur the line between scripting, programming and even operating systems. Apple clearly hopes to bring programming flexibility to its users in the guise of other systems, including:

▸ **ScriptX.** Kaleida Labs Inc., Apple and IBM Corp.'s multimedia joint venture, has been working with several partners to produce ScriptX, a cross-platform application programming interface (API) for controlling multimedia equipment. Unlike other APIs, ScriptX will act much like a scripting system, letting nonprogrammers coordinate and control multimedia presentations on a variety of platforms. ScriptX will run on Apple's Sweet Pea consumer multimedia devices, and it will comprise the interface between IBM's AIX-based video server and client IBM PCs and compatibles, according to sources.

In addition, Macromedia Inc., based here, has announced it is developing translators between ScriptX and its MacroMind Director and Authorware Pro packages.

▸ **Dylan.** Apple's object-oriented dynamic language has changed considerably both in form and substance since it was announced last year. Originally described as a new programming language based loosely on LISP, its extensive use of objects could make programming a less-technical experience.

Dylan permits programs to load functional objects into memory and share their actions with other programs. Without considerable knowledge about how each object works, programmers or scriptors could use these objects to accomplish a task. These shared functions may make Dylan the development language of choice for the Newton, which runs under tight operating space constraints.

▸ **SK8.** Apple's Advanced Technology Group last month demonstrated a new multimedia authoring system at the MADAcon '93 conference in San Diego. SK8 offers hardware-independent scaling and pan/zoom, and it lets scriptors define functional objects without the use of external commands (XCMDs). Apple stressed that SK8, which is built on Object LISP and requires 16 Mbytes of memory, is a theoretical development, not a product. But some developers said SK8 might become a viable project if built on Dylan's less-demanding system.

▸ **NewtonScript.** Dylan once was considered the most likely development language for software for Apple's upcoming Newton line of PDAs. Now NewtonScript, a natural-language scripting system that lets forms communicate with information systems, is being touted as a superior development tool for Newton's form-based applications.

Scripting systems in the pipeline

LANGUAGE	DEVELOPER	WHAT IT DOES
AppleScript	Apple	Integration of Mac applications
Telescript	General Magic	Creation of communications agents
ScriptX	Kaleida	Cross-platform multimedia authoring
Dylan	Apple	Object-oriented dynamic programming
SK8	Apple	Multimedia authoring
NewtonScript	Apple	Natural-language scripting for PDAs

ClarisWorks

From Page 1

headings, as well as a button to perform AutoSum calculations. The database will have a variety of buttons for selecting field border types. The floating button palette also can contain buttons that perform a task within a specific database, such as move forward one record.

Users will be able to customize ClarisWorks' macro buttons using the program's macro language, sources said. They also will be able to modify button icons.

▸ **Paint module.** The only new module in ClarisWorks 2.0 is a basic 32-bit-color paint program that offers an editable, 256-color palette and lets users create paint frames anywhere in the program except while working in the communications module. Users will be able to paint directly into those frames or import a PICT file.

▸ **Slide show.** Version 2.0 will add rudimentary tools for creating and managing on-screen presentations. The slide-show facility, which can be accessed from anywhere in ClarisWorks, will display individual pages of a ClarisWorks document as a full-screen slide. The upgrade will let users place QuickTime movies in documents and play them during on-screen presentations.

▸ **Word processor.** A built-in hierarchical outliner will let users format and assign styles to any level or heading. Users will be able to collapse or expand levels. "The implementation makes it better and easier to use than [Microsoft] Word's outliner," said one beta tester.

Users will be able to wrap text around regular- and irregular-shaped objects.

One source said the ClarisWorks 2.0 word processor contains some features, such as the outliner, which will not appear in MacWrite Pro, Claris' long-overdue upgrade to MacWrite. ClarisWorks may cripple sales of MacWrite Pro, which reportedly will ship later this month, the source said.

▸ **Database.** ClarisWorks 2.0's database module will support pop-up fields that contain a predefined list of choices for entering data.

The module's mail merge feature will include label formats for a wide variety of standard label sizes.

▸ **Other enhancements.** Other new features will include several new chart types within the spreadsheet's charting facilities, the ability to create custom chart formats and combination charts, "Bézigon" and polygon drawing tools in the draw module, and support for the Kermit file transfer protocol within the communications module.

ClarisWorks 2.0 for the Mac will be able to read files created in ClarisWorks for Windows, due out in late spring. However, ClarisWorks 2.0 files will not be readable by the Windows version.

ClarisWorks 1.0, released in November 1991, has garnered about 61 percent of the Mac integrated-software market, after overthrowing Microsoft Works, which now ranks second with about 29 percent of the market, according to Dataquest Inc., a San Jose, Calif., market research company.

Claris declined to comment. □

Rae

From Page 1

tact manager, to-do list and note taker, sources said.

While the application supports most of the functions users expect from a full-featured personal information manager (PIM), such as configurable calendar views and date and time stamps for to-do lists, what makes it powerful is what lies under its PIM skin.

Because the program is built on top of Rae's free-form architecture, it is possible to relate any data object to any other data object.

For example, when a user enters a name into the date book, if the name also resides in the contact manager, it can be used to call up the person's information by clicking on the name, sources said.

Rae's software also reportedly supports relational links, so if a user chooses to look at information in the contact manager from a company rather than an individual view, all the people who work for that company would be listed in that company's profile.

Data links can be forged by the user or can be generated by Rae's assistant technology, which can suggest links by comparing common data objects.

▸ **Information architecture.** The software PDA is simply a collection of forms running on top of Rae's information architecture, sources said.

Rae's technology consists of three layers, sources said. The first layer consists of a network of links between data objects, which users can "navigate" through by clicking on buttons or words. These links are context-sensitive and dynamic; they change according to the way the user is looking at the data and when new data is added to the "soup."

Helping to establish these links is the assistant layer, which can connect and disconnect links between data objects either automatically or based on a request from the user.

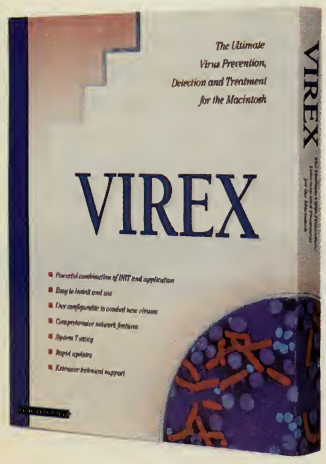
Below that is the free-form data object manager, which identifies each piece of data and its location.

Rae's software actually stores data in its native file format outside of the program architecture, so text, PICT or database files can be objects in a Rae application without needing to be converted.

While Rae officials were willing to confirm the existence of their company, they were unwilling to comment on their business plans.

However, sources said a big part of Rae's business will be developing custom solutions for large corporations using its technology. □

Anti-virus software that's tough on viruses, not on you.



NEW NETWORK FEATURES

Computer virus problems within your organization can be a nightmare. New Virex® 4 is a network manager's dream. Its powerful network features enable Macintosh network managers to configure and update individual user machines from a single Mac. Network managers can also gather information about virus attacks within the organization. And Virex has always been the easiest anti-virus product to use. With Virex, you won't be tied up with lots of user questions about your anti-virus software.

USER-UPDATABLE

EASY TO USE

GREAT SERVICE & SUPPORT

DATAWATCH®

PO Box 51489 • Durham, NC 27717
(919) 490-1277 ext.1023
FAX: 490-6672
BBS: 419-1602 (8,1,N)

Virex is available in single units and in an attractively-priced 10-PAK. See your dealer to purchase Virex today or call us about our convenient site licensing program. Virex is also available for IBM-PC and compatible computers.

© 1992 Datawatch Corporation. Datawatch and Virex are registered trademarks of Datawatch Corporation.

Advertiser index

Adobe 5
Airbourne 83
Andrew 11
APS 77-79
APT Communications 55
Artifice 56
Asanté 21
AXiON 56
Battery Technology 57
Boxlight 55
Caere 39
Chinon 49
Club Mac 70-73
Compumation, ... 56
Cypress Research 57
Datawatch 112
Dayna 23
DayStar 2
Diva 54
Educorp 109
Farallon 116
Focus 68-69
Fusion Data Systems 56
Hardware That Fits 74-75
Inline Design 52
Insignia Solutions 40
International Mac Specialists 104
International Transware 57
Kensington 43
La Cie 18-19, 64-65
Lapis 31
Light Source 16
Lind Electronic Design, ... 55
LLB Company 88-91
Mac & More 58-59
Mac & PC 84-85
Mac Center 76
Mac Consulting Network 8
Mac Direct 61-63
Mac Extra 96
Mac Outlet 60
Magna 55
Media Vision 27
Memory Direct 97
Memory Plus 94
Merisel 17, 51
Milum 56
NEC Technology 12,13
Newer Technology 114
NoRad 56
Optima Technology 53
Peripheral Outlet 95
Pinnacle 7
PLI 46
RasterOps 115
Relax Technology 102-103
SAS Institute 55
Saturae 101
Shreve Systems 106
Spin Peripherals 86-87
SuperMac 25
Syex 80-81
Synergy Software 57
Technology Works 92
Third Wave 82
Tribe 29
USA Flex 66
Wollongong 9
Xinet 55

Products mentioned in this issue

CD-ROMS

MacSciTech The Official Scientific Engineering Applications of the Macintosh (SEAM) '92 Conference CD-ROM 9

COMPUTER-AIDED DESIGN & 3-D MODELING

Alias Sketch! 1.5 41
Pixar Glimpse, Typestry 1.1 26
Ray Dream Ray Dream Designer 42
SystemSoft Shade II 24

COMPUTERS & SYSTEM SOFTWARE

Apple Macintosh Centris, LC III, IIvx, Quadras 1
Apple Newton, Sweet Pea 38
Apple PowerBooks 14, 35
Apple PowerBook Express Modem 35
Apple Macintosh Hardware System Update 1.0, 32-bit System Enabler 3
IBM ThinkPad 700C 14
Microsoft Windows 36
Toshiba 4400C 14

DATABASES

Blyth Omnis 7 33
Claris FileMaker Pro 33
Microsoft FoxBASE 33

DESKTOP PUBLISHING & TYPOGRAPHY

Adobe Acrobat 6
ATA ATA/Doc Templates 9
No Hands Common Ground 6
North Atlantic Publication Administrator 2.0 26

GRAPHICS SOFTWARE

Canto Cumulus 1.1 24
Dycam Dycam Macintosh 3.3 26

INTEGRATED PACKAGES

Claris ClarisWorks 2.0 1

MULTIMEDIA

Digital F/X Hitchcock 24
DiVA VideoShop 1.0 bundle on SyQuest removable cartridge 4
Mass Micro multimedia bundle, multimedia upgrade kit 4

NETWORKS

3Com NETBuilder Remote Control router, LinkBuilder ECS Remote Control Module card 22
Alisa AlisaMail 20
Apple SNA•ps Gateway 22
Asanté EN/SC-10T PB, EN/SC PB 14
Asanté Hub 2072, AsantéBridge 1012, AsantéView 2.2 20
Dayna DaynaPORT SCSI/Link PB, DaynaPORT SCSI/Link-3 PB, DaynaPORT E/Z, DOS Mounter 14
Farallon PowerPath, Liaison, Timbuktu 14
IBM SNA•ps 5250 terminal emulator 22
Insignia Universal SoftPC, AccessPC, SoftPC Professional 14
International Transware InterTalk router 3.0 22
IPT Print Queue Manager 22
Kalpana EPS-500 20
Penril DVX multiplexer 22
Sonic PowerBridge 14
Technology Works Ethernet SC (PB), Ethernet SC-T (PB) 14
Telebit NetBlazer PN, NetBlazer PN2 22
Tribe TribeStar 20
Ungermann-Bass DragonSwitch 20

ORGANIZATIONAL TOOLS

Cartesia MapArt Vol. 1-4, MapArt World Data Bank 47
ComGrafix MapGrafix Mapping System — MapGrafix, MapLink, MapView, MapGrafix Display (runtime version) 47
COMPUneering LANDesign, Data Collector Module, Export Module, LANDview, Volumetrics Module, Import/Export Module 47
Computer Systemics GeoView 3.0 47
GeoQuery GeoQuery 3.02 47
Graphsoft Azimuth 2.1, Azimuth US Geographic Data CD-ROM 47
Highlighted Data Electronic Map Cabinet 47
Image Mapping MacChoro II with Map Animation 47
Kansas Geological Survey Surface III 47
MapInfo MapInfo for Macintosh, MapBasic Development Environment, StreetInfo 2.0 47
RockWare MacGRIDZO 3.0 47
SIAL Géoscience MacGeos II, MacGeos II with Temeryplot 47
Strategic Mapping Atlas Pro, Atlas MapMaker, Local Expert, Local Expert CD, Atlas Software, Eurostat Edition 47
Tactics Tactician Geographic Information System — Tactician 3.0, Tactician with Buttons, Heavy Duty Tactician 47
TerraLogics TerraView 3.0, Mac interface 47
ThinkSpace Map II 47

PDAS & ACCESSORIES

Rae Software PDA 1

POWERBOOK UTILITIES & ACCESSORIES

Connectix Connectix PowerBook Utilities (CPU) 41
Inline PBTools 1.0.1 41
Newer Nightmare on PowerBook Street, PowerBook 165c RAM 4
Symantec Norton Essentials for PowerBook 41

PRINTERS & PRINTING TOOLS

Apple LaserWriter IIg 36
Epson Epson Talk kit for dot matrix, LQ-700, ActionPrinter, Epson Talk kit for lasers, EPL-800, ActionLaser 1000, ActionLaser 1500 6
GCC SelectPress 600 6
GDT Softworks PowerPoint/LT 1.0 44
Microtech Europa line for Centris 610, Roadrunner D500i, Nova drives 6
NewGen TurboPS/880p, TurboPS/660p, TurboPS/300p, TurboPS/400p 8
Nine To Five PaperLess Printer 6
RasterOps CorrectPrint 300i 24
Samsung Finalé 800 printer, Image1200 upgrade kit 9

PROGRAMMING TOOLS

Apple AppleScript, HyperCard, Dylan, SK8, NewtonScript 1
Apple Macintosh Programmer's Workshop, MacApp 36
General Magic Telescript 1
Kaleida ScriptX 1
SoftStream HyperHIT Deluxe 11
Userland Frontier 2.0, Frontier Runtime, Frontier Software Developers' Toolkit (SDK) 2.0 45

SCANNERS & OCR

Apple OneScanner 36
Canto Cirrus 1.5 and 2.0 26
Light Source Ofoto 26

STORAGE

FWB hammerCD, hammerDisk 1000 10
Mass Micro internal CD-ROM, magneto-optical, DAT, and SyQuest drives for Centris 4
Optima C2000DAT, C8000DAT, C45R, C88R, C88Rplus, C128MO, C240, C1600, C240/3, C500/3 8

SYSTEM ENHANCEMENTS

Lifetime Memory 32-bit SIMMs 8
Microtech 32-bit SIMMs 6
Second Wave Expanse line of external NuBus chassis systems 4

TELECOMMUNICATIONS

Circuit Research FlexFAX modem 33
High Tide WaterMark Voice Mail 1.1 22

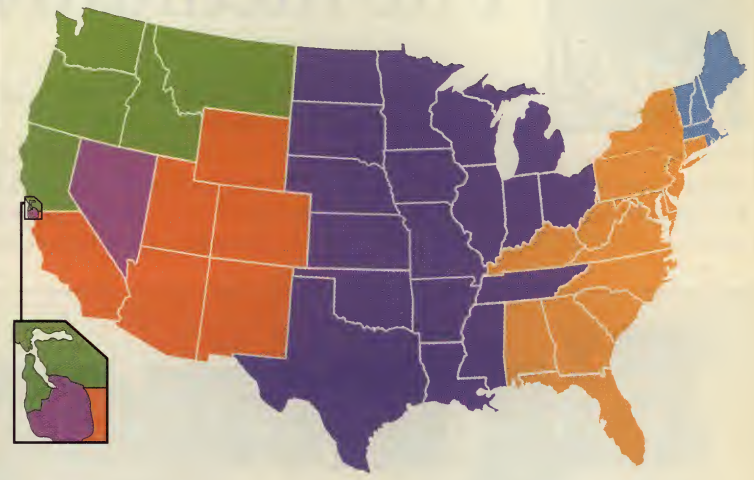
UTILITIES

Central Point Anti-Virus 3
Central Point Disk Bug Checker, CD DiskFix 50
Design Intent Design Intent! 10
FWB Hard Disk ToolKit 50
IntelliTools Overlay Maker 11
MicroSeeds Rival 3
Norstad, John Disinfectant 3.0 and 2.9 3
Symantec Symantec AntiVirus for Macintosh 3.5 3

WORD PROCESSING & DOCUMENT TOOLS

WordStar Stedman's 25/Plus for Microsoft Word 11

MacWEEK sales offices



MacWEEK

SHOWCASE
Becky Bacon
Account Executive
(415) 243-3542

MARKETCENTER
(800) 825-4ADS

CAREER OPPORTUNITIES
(800) 288-HIRE

DISPLAY ADS

Northwest*
Matt Sweeney
District Sales Manager
(415) 243-3545
André Lengyel
Account Executive
(415) 243-3565

Midwest**
Thomas J. Lutzke
District Sales Manager
(312) 346-2600
C. Wesley Walton
Account Executive
(415) 243-3525

Bay Area and Nevada
Peter Longo
Western Advertising Director
(415) 243-3590
Sam Faillace
District Sales Representative
(415) 243-3535

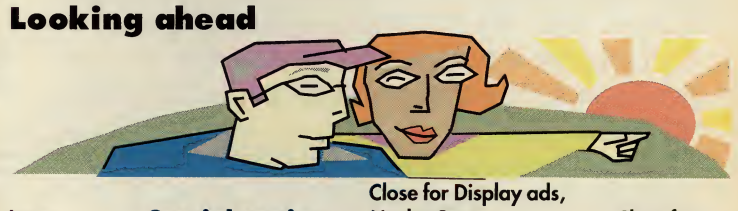
New England***
Karl Elken
District Sales Representative
(617) 393-3060
Jo-Ann Sturtridge
Account Executive
(415) 243-3575

Mid-Atlantic and Southeast
Cynthia Ramsey
Eastern Advertising Director
(212) 503-4432
Jo-Ann Sturtridge
Account Executive
(415) 243-3575

Southwest****
Sara Culley
District Sales Manager
(213) 351-1832
Lauren Goldstein
Account Executive
(415) 243-3511

* Includes San Francisco, Alaska and Alberta and British Columbia, Canada
** Includes Manitoba and Ontario, Canada
*** Includes New Brunswick, Newfoundland, Prince Edward Island and Quebec, Canada
**** Includes Hawaii

Looking ahead



Issue date	Special section Product Watch	Close for Display ads, MarketCenter, Career Opportunities	Close for Ad Showcase
March 15	Scanners	March 4	March 2
March 22	UPS hardware	March 11	March 9
March 29	**Applications development** Data-analysis hardware	March 18	March 16
April 5	Electronic mail	March 25	March 23
April 12	**GA Spec. Rpt.** Video	April 1	March 30
April 19	Graphics hardware	April 8	April 6
April 26	**Printers** Monitors	April 15	April 13
May 3	Networking	April 22	April 20

The medium is the monitor

There are those hearty souls who insist that happiness is where you find it, and to them, happiness is everywhere. Not unlike Bill Clinton. Having a president who never met a travel plan he didn't like has its advantages. Take last week's visit to solidify his support in this industry's heartland.

Overall, most observers gave the expedition good marks, although according to the Knife's own call-in line, several observers in the media insisted on referring to the ground-zero of the U.S. computer revolution as Silicone Valley. Oh well, at least we know why education is a high priority this time out.

Those same call-in lines are continuing to be jammed with requests for advice on how to deal with the changes that Apple has promised for the near future. Some, after purchasing a IIvx or two or 500 a few scant months ago, are annoyed that it has now been devalued to the tune of about $1,000, while the IIvx-to-Centris upgrade itself is in the $1,000 range, also. These callers should indeed be grateful that Apple has offered an upgrade path, an option implied more often than delivered.

Other callers want help deciding between the self-evident advantages of a new Centris or Quadra 800 vs. the admittedly enticing Cyclone. Conventional wisdom says buy it now if you need it now. That's good advice even if you remember the specifications for the new display that Apple has in the works.

Sources tell the Knife that the new monitor is code-named Telecaster for a good reason. In addition to the Sony Trinitron monitor now playing in Apple's standard 14-inch color display, this future display will incorporate a super-sensitive condenser microphone (recessed in a depression one source tastefully described as a "belly button"). It also will include two integrated speakers to accommodate the out part of its sound capabilities. This package is topped off with an Apple Desktop Bus port and a tilt-and-swivel stand and should retail for a bit less than $800.

Say it ain't so. Believe it or not, rumors circulate in this industry like flies in the summer heat. Stranger yet, rumors sometimes accumulate with a questionable basis in reality.

That's certainly the case with the stories the Knife is hearing about the death of the project to build pen extensions to the Mac OS. A quick check of those many oh-so-reliable sources revealed that the work is chugging along just fine, thank you, and may still see the bright light of day by the end of the year.

And although these pen extensions are a natural candidate for use on one or more of the more-portable Macs, there's reason that the same technology could be put to use on the more-sedentary Macs, too.

The 80 percent marketing solution. As previously reported, Apple is actively pursuing the perceived market opportunity in keyed applications on CD-ROM. The Knife has recently learned a few of the details of this adventure.

According to sources, Apple is offering its most valued and respected third-party developers a whopping 20 percent of the derived revenue. All the developers have to do is support and continue to develop their products. So now we know exactly the value Apple places on marketing and distribution. Who says big isn't good?

And speaking of big, didn't that eight-page spread in The Wall Street Journal last week show a little moxie? But let's hope that Apple isn't taking too much pleasure in the court ruling that the term "Windows" can't be trademarked. Sources claim that Tektronix has laid a claim to certain rights to technology used in QuickTime clips. Could be a good season for the lawyers. □

Who needs a trademark or patent controversy when you've got a MacWEEK mug? For those in the know, the games begin at (415) 243-3544, fax (415) 243-3650, MCI (MactheKnife), Internet (mac_the_knife@macweek.ziff.com), AppleLink (MacWEEK) and CompuServe/ZiffNet/Mac.

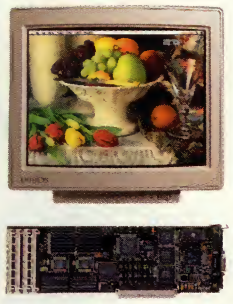
SAVE A BUNDLE ON A BUNDLE.

SAVE $200 ON A RASTEROPS COLOR DISPLAY SYSTEM.

Buy a RasterOps® color system (monitor and display adapter) before March 31, 1993 and we'll put a spring in your step. Announcing the $200 rebate from the leader in multi-media and true color imaging for the Macintosh®.

Choose the system that's right for you, send us your proof of purchase with claim form, and we'll send you $200*. That's all there is to it.

THE CUSTOMCOLOR 20" SOLUTION



Combines the RasterOps 20T Multiscan Trinitron Color Display with the RasterOps 24XLi display adapter that features:

- Full acceleration (G-World & QuickDraw)
- Accelerated 24-bit color
- Multiple on-screen resolutions (up to 1152 x 870)
- Exclusive 8x hardware pan & zoom

THE CUSTOMCOLOR 21" SOLUTION

Combines the RasterOps 21" Color Monitor with the RasterOps Paint-Board 24 display adapter featuring:

- Affordable 24-bit color
- QuickDraw acceleration
- Full 2 pages at WYSIWYG resolutions

Rebate claim forms are available from your authorized RasterOps dealer.

RASTEROPS®
THE ART & SCIENCE OF COLOR™

HURRY, OFFER ENDS MARCH 31, 1993.

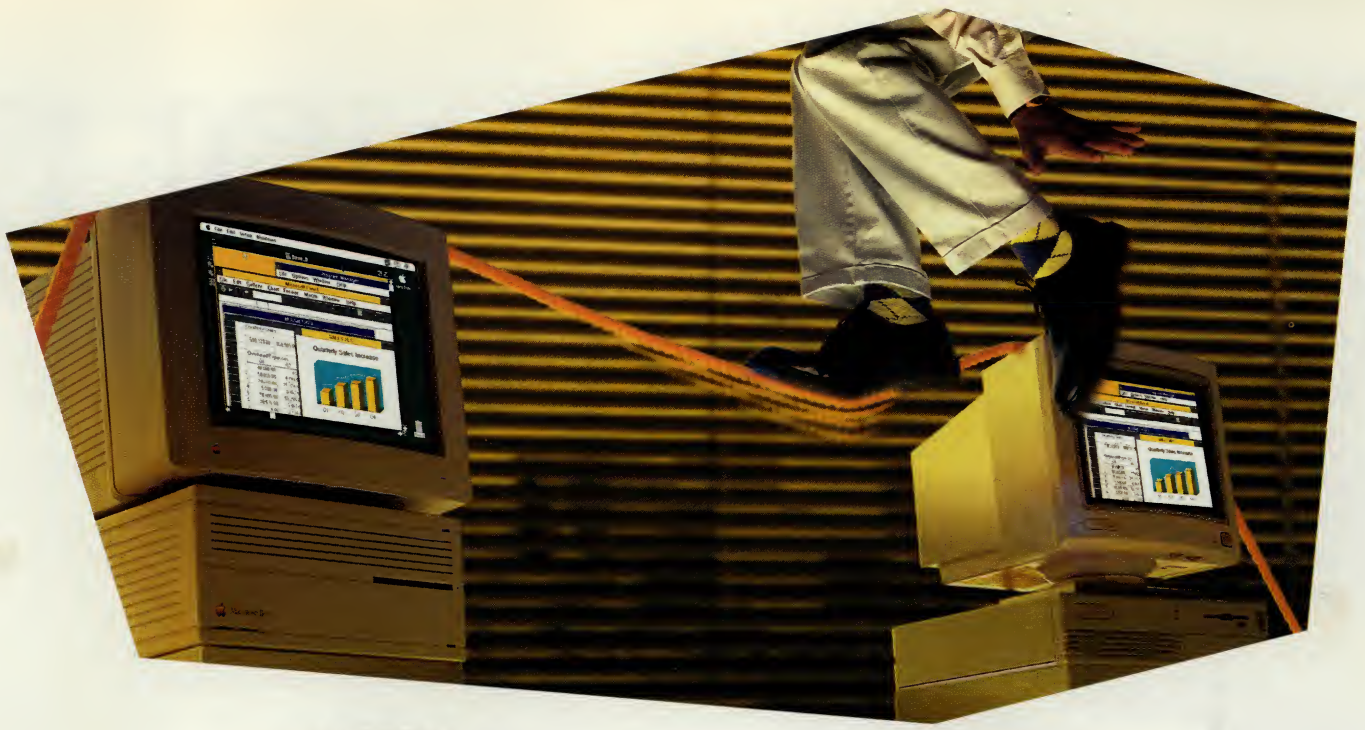
So visit your nearest RasterOps dealer soon, or call us at 1.800.SAY.COLOR.

* Products must be purchased by March 31, 1993. Rebate claim forms must be received at RasterOps by May 1, 1993.

© 1993 RasterOps Corp. All brand names and products are trademarks or registered trademarks of their respective holders.

RASTEROPS

RASTEROPS CORPORATION, 2500 WALSH AVE., SANTA CLARA, CA 95051 FAX: 408.562.4066



Cross platforms easily.

New Timbuktu is the easiest way to network Macintosh and Windows computers, so you can share printers, files and screens.

New Timbuktu for Windows 1.0

- Lets you connect to AppleTalk printers and AFP servers.
- You can "browse" network resources with a Windows "Chooser."
- High-performance file exchange and full 24-bit screen sharing.
- Supports over 25 network cards for Ethernet, LocalTalk & Token Ring.
- Supports memory managers including DOS 5.
- Multi-level password security.
- Timbuktu for Windows PhoneNET® kit includes LocalTalk for ISA or MCA.

New Timbuktu for Macintosh 5.0

- New connection documents automatically re-establish connections.
- Backward compatible with previous versions of Timbuktu.
- Dial-in support over ARA or Farallon's Liaison™

Moving information between Macintosh® and Windows™ computers used to be quite a feat of skill. Let alone nerves.

But now there's Farallon's new Timbuktu® for Macintosh and Windows.

Timbuktu is the easiest way to create a peer-to-peer network. So, whether you're on a PC or Mac, you can share expensive peripherals like printers. And exchange files quickly and easily.

You also get a unique benefit—remote control. Timbuktu can send a real-time, full-color picture of your screen over the network so you can control and view it from another Mac or Windows PC. This lets you use your network for new things like collaboration and user support.

Of course, Timbuktu is easy to use and install. You don't need a dedicated gateway or server. And it works with what you've got. Even other networks on NetWare or TCP/IP.

For a free full-color Timbuktu product guide, just call. It's that easy. **1-800-949-7761***.

MICROSOFT® WINDOWS™ COMPATIBLE

yes It runs with NetWare

Farallon®

Power to the network.™

***Upgrades available for current users of Timbuktu and PhoneNET PC (previously AppleShare PC and PhoneNET Talk). Call 1-800-678-5075.**

A copy of Timbuktu is required on each machine on the network. Single- and multi-packs are available.

All trademarks are property of their owners. ©1992 All rights reserved. For customer service, call (510) 814-5000. Or contact us on America Online® or AppleLink® ID: Farallon. CompuServe® ID: 75410, 2702. Internet ID: Farallon@farallon.com.